

MANUFACTURERS' RECORD

A WEEKLY SOUTHERN INDUSTRIAL
RAILROAD AND FINANCIAL NEWSPAPER.

CONTENTS.

EDITORIAL.

A Danger to the South	5
Stop Fighting the Railroads	5
The Texas Alien-Land Law Unconstitutional	5
The President's Message	5
Railway Progress in the South	6
A New Era in Southern Advancement	6
Coal in Texas	6
Cotton Manufacturing in the South	6
The Effect of Bad Railroad Laws	7
Editorial Short Notes	5, 6, 7, 31

CONSTRUCTION DEPARTMENT.

Full particulars regarding all industrial enterprises organized in the South during the past week	34-36
Burned	36
Building Notes	36
Machinery Wanted	38

FINANCIAL DEPARTMENT.

New Banks	32
Bonds, Stocks and Other Notes	32

RAILROAD DEPARTMENT.

Railroad Construction	31
-----------------------	----

CORRESPONDENCE AND NOTES.

The Lake Superior Iron-Ore Production in 1891	7
Pyrites for Sulphuric Acid	7
What a Western Banker Thinks of the South	8
New Markets for Norfolk's Trade	8
Developing Coal at Weatherford, Texas	9
Middlesborough Notes	9
World's Fair Notes	9
Extensions of the Plant System	10
Tin-Mining in Virginia	10
Baltimore Investments in Southern Railroads	10
A Louisiana Lumber Plant	10
The Effect of Electricity Upon Plants	11
New Uses for the Scrub Palm	11
Enthusied with Llano, Texas	11
The Llano (Texas) Railroad	11
Florida Phosphates	32
The Broadening Out of Southern Development	32
An Important Railroad To Be Built	36

INDUSTRIAL NOTES.

Trade Notes	19, 43, 61
Illustrated Descriptions of Machinery	40, 41
Iron Markets	60, 61
Eastern Lumber Markets	62

VOL. XX.
No. 20.

\$4.00 per year.
Single Copy
10 Cents.

Baltimore, December 19, 1891.

Classified Index of Advertisers.

[FOR "ALPHABETICAL INDEX" WITH PAGES, SEE PAGE 65]

- Air Compressors.**
Ingersoll-Sergeant Rock Drill Co.
Rand Drill Co.
- Architects.**
Collins & Hackett.
Brothers of Sassure & Waters.
F. Feikel.
A. F. Gray.
Wilson & Huggins.
C. R. Makepeace & Co.
Robert Miller.
Lockwood, Greene & Co.
Drew, Baldwin & Co.
- Architectural Iron Work.**
Toledo Corbice Works.
Cushman Iron Co.
Belmont Iron Works.
Champion Iron Co.
J. E. Bolles & Co.
E. T. Barnum.
Fred J. Meyers Mfg. Co.
T. H. Brooks & Co.
- Auto. Sprinklers.**
Providence Steam & Gas Pipe Co.
W. R. Burgess Mach. Co.
Neracher Sprinkler Co.
- Bankers & Brokers.**
Von Hemert & Co.
N. W. Harris & Co.
Jno. L. Williams & Son.
Middendorf, Oliver & Co.
- Barrel Machinery**
(See Wood-Working Machinery.)
- Baths.**
Haines Jones & Cadbury Co.
- Bearings.**
North American Metal Co.
- Bells.**
Henry McShane & Co.
- Belting.**
Wm. C. Codd.
Main Belting Co.
Cheasapeake Belting Co.
Gandy Belting Co.
Chicago Rawh. Mfg. Co.
Page Belting Co.
Shultz Belting Co.
- Belt (Chain).**
F. H. C. Mey.
Jeffrey Mfg. Co.
Link Belt Engineer's Co.
- Blacksmiths' Tools.**
Bullock Bellows Co.
M. L. Edwards Co.
- Blinds.**
S. J. Fisher.
Willer Mfg. Co.
- Blowers and Exhaust Fans.**
West & Branch.
Guyot & Clark.
Huyett & Smith Mfg. Co.
B. F. Sturtevant Co.
- Boiler Fronts and Fittings.**
Casey & Hedges Bol. Co.
E. Keeler Co.
Vulcan Iron Works Co.
- Boilers.**
(See Also Machinery.)
Chandler & Taylor Co.
Enterprise Boiler Co.
W. R. Burgess Mach. Co.
Taylor Engine Co.
West & Branch.
H. P. Edmond.
Struthers, Wells & Co.
J. E. Morris.
Wm. C. Codd.
Wright & Adams Co.
Ravenna Boiler Works.
Richmond Locomotive & Machine Works.
Babcock & Wilcox Co.
Geo. R. Lombard & Co.
H. Dudley Coleman Machinery Co., Limited.
Greer Machinery Co.
Hazelton Tripod Boiler Co.
- A. R. Farguhar Co.**
Buckeye Engine Co.
Stearns Mfg. Co.
C. & G. Cooper & Co.
New York Safety Steam Power Co.
Smith-Courtney Co.
Charleston Iron Works
Skinner Engine Co.
E. Keeler Co.
Talbot & Sons.
Corliss Steam Eng. Co.
Bass Fdy. & Mach. Wks.
Globe Machine Co.
Jas. Leffel & Co.
Casey & Hedges Bol. Co.
F. M. Arthur & Co.
Cleveland & Hardwick.
Fulton Boiler Works.
Dan Shea & Co.
J. C. McNeil Co.
Oil Well Supply Co.
Hulse Safety Boiler Co.
Tudor Boiler Mfg. Co.
Valk & Murdoch I. Wks.
Frick Co.
Warrington Mfg. Co.
Shannon Boiler Wks. Ltd.
Geo. W. Tift, Sons & Co.
Webster, Camp & Lane Machine Co.
- Boiler Appliances.**
Sherwood Mfg. Co.
Hine & Robertson.
Jas. Berryman.
American Injector Co.
Pemberton Injector Co.
National Tube Wks. Co.
Jenkins Bros.
Wm. Baragwanath & Sons.
Rue Mfg. Co.
American Well Works.
- Casey & Hedges Bol. Co.**
Stillwell & Bierce Mfg. Co.
Hoppe Mfg. Co.
- Bolts, Rivets and Nuts.**
Cianti, Screw & Tap Co.
Pennsylvania Steel Co.
Hoopes & Townsend.
Brick & Clay Working Machinery & Supplies.
P. L. Sword & Son.
C. & A. Potts & Co.
Anderson Foundry & Machine Works.
H. Martin E. Mfg. Co.
H. Brewer & Co.
E. M. Freese & Co.
Adrian Brick & Tile Machine Co.
Kells & Sons.
J. W. Penfield & Son.
J. D. C. Arnold.
Fry-Schickler Co.
Chambers Bros. Co.
Fletcher & Thomas.
C. W. Raymond & Co.
Alex. K. Rarig & Co.
- Bridges.**
S. W. Frescoln.
Amer. Bridge & Iron Co.
Berlin Iron Bridge Co.
Pennsylvania Steel Co.
- Business Opportunities.**
Secty. Board of Trade.
Lake City, Fla.
"Cement."
"A. R."
Cooke & Libby.
Marbury & Jones.
J. C. Rawn.
Anderson.
Aniston Rolling Mills.
Ed. N. K. Talcott.
W. T. Cotter.
E. E. Bouldin.
La Pierre Phosphate Co.
M. V. Richards.
Maryland Non-Acid Phosphate Co.
Chas. G. Eddy.
- Canning Machinery.**
Nag. Stamp & T. Co.
Warfield Mfg. Co.
- Card Clothing.**
(See Textile Machinery and Supplies.)
- Cars.**
(See R. R. Equipment and Supplies.)
- Castings.**
Hight & Clark.
Todd Pulley & Shafting Works.
Southern Mal. Iron Co.
Ross-Meehan Brake Shoe Foundry Co.
A. Whitney & Sons.
Knoxville Car Whl. Co.
Chester Steel Cast'g Co.
- Car Wheels.**
Wm. A. Cather & Bro.
Knoxville Car Whl. Co.
A. Whitney & Sons.
- Car Works Equipment.**
Geo. Place.
- Cement.**
Fred J. Bichon & Co.
- Cement.**
Howard Hydraulic Cement Co.
- Chemist.**
Frederic P. Dewey.
Jno. Sanderson.
Walker Bowman.
Ledoux & Hoskins.
Stein & Schwarz.
Clutchoe (Frit'n.)
Allentown Foundry & Machine Works.
The Moore & White Co.
- Construction Companies.**
Amer. Bridge & Iron Co.
Berlin Iron Bridge Co.
Contractors' Supplies.
Wm. A. Cather & Bro.
Marion Stm. Shovel Co.
Bucyrus Steam Shovel & Dredge Co.
F. C. Austin Mfg. Co.
Vulcan Iron Works Co.
Drills (Prospect'g) Diamond Prospecting Co.
M. C. Bullock Mfg. Co.
Rand Drill Co.
Diamond Prospecting Co.
Ingersoll-Sergeant Rock Drill Co.
- Drills (Wood and Metal).**
Cincinnati Tool Works.
Syracuse Twist Drill Co.
Graham Twist Drill Co.
Silver Mfg. Co.
W. F. & Jno. Barnes Co.
Cleveland Twist Drill Co.
Lodge & Davis Machine Tool Co.
Bickford Drill Co.
Foot Mfg. Co.
- Dry Kilns.**
Huyett & Smith Mfg. Co.
B. F. Sturtevant Co.
- Electric Drills.**
Sherwood Mfg. Co.
Electric Lamping Beasley & Hodgson.
Keystone Electric Co.
L. N. Cox.
Woodbridge & Turner Engineering Co.
Edison Gen. Elec. Co.
Warfield Mfg. Co.
Card Electric Motor & Dynamo Co.
Thomson-Houston Electric Co.
Schuyler Electric Co.
Heiler Elec. Co.
Electric Railway and Motors.
S. W. Frescoln.
Beatey & Hodgson.
Keystone Electric Co.
L. N. Cox.
Woodbridge & Turner Engineering Co.
Edison Gen. Elec. Co.
Thomson-Houston Electric Co.
- Electrical Supplies.**
John Simmons Co.
Billings & Spencer Co.
Enterprise Safety Elevator Co.
A. B. See Mfg. Co.
Jas. H. Curran.
Am. Elect. Elevator Co.
James Bailey.
Jeffrey Mfg. Co.
Morris Williams & Co.
Walker & Elliott.
F. H. C. Mey.
W. J. Clark & Co.
- Engines.**
(See Also Machinery.)
Globe Machine Works.
Chandler & Taylor Co.
W. R. Burgess Mach. Co.
Westinghouse Mach. Co.
Taylor Engine Co.
H. P. Edmond.
Struthers, Wells & Co.
Harrisburg Foundry & Machine Works.
J. E. Morris.
Wm. T. Codd.
Triumph Compound Engine Co.
Wm. C. Codd.
Edward P. Allis & Co.
A. F. Bartlett & Co.
Wright & Adams Co.
Dake Engine Mfg. Co.
Geo. R. Lombard & Co.
Smith-Courtney Co.
Phila. Engineer's Wks.
H. Dudley Coleman Machinery Co., Limited.
Greer Machinery Co.
A. B. Farguhar Co.
Buckeye Engine Co.
C. & G. Cooper & Co.
New York Safety Steam Power Co.
Huyett & Smith Mfg. Co.
Stearns Mfg. Co.
Ball Engine Co.
Charleston Iron Works
Skinner Engine Co.
Penna. Machine Co.
Corliss Steam Eng. Co.
Jas. Leffel & Co.
Bass Fdy. & Mach. Wks.
American Well Works.
Globe Machine Co.
Casey & Hedges Bol. Co.
F. M. Arthur & Co.
Racine Hard. Mfg. Co.
Lawrence Machine Co.
A. K. Rarig Co.
Cleveland & Hardwick.
Talbot & Sons.
Oil Well Supply Co.
Frick Co.
Valk & Murdoch I. Wks.
Geo. W. Tift, Sons & Co.
Valley Iron Works.
Webster, Camp & Lane Machine Co.
- Engines (Kerosene).**
Shipman Engine Co.
Whitman & Barnes Mfg. Co.
Rochester Machine Tool Works.
- Engravers.**
Budden & Son.
Baito. Engraving Co.
Photo. Elec. Eng. Co.
- Excavators.**
Marion Stm. Shovel Co.
Bucyrus Steam Shovel & Dredge Co.
Vulcan Iron Works.
Fried Wat'r & H. water
Wright & Adams Co.
Hine & Robertson.
Jas. Berryman.
Wm. Baragwanath & Sons.
Hoppe Mfg. Co.
- Fencing.**
Cushman Iron Co.
Mast, Foss & Co.
H. Balderston & Sons.
F. M. Arthur & Co.
Belmont Iron Wks., Ltd.
Dufur & Co.
Fred J. Meyers Mfg. Co.
Ludlow Saylor Wire Co.
- Fertilizer Mohry.**
W. D. Dunning.
Charleston Iron Works
Thornburgh & Glessner Walker & Elliott.
C. H. Dempsey & Co.
Valk & Murdoch I. Wks.
Flick Co.
- Files.**
H. Y. Diaton & Sons, Inc.
Nicholson File Co.
Flour & Grist Mill Machinery and Supplies.
Thompson & Campbell.
Munson Bros.
Weller Mfg. Co.
Thornburgh & Glessner
J. B. Allire Mfg. Co.
Nordyke & Marrison Co.
Case Mfg. Co.
Talbot & Sons.
H. W. Caldwell & Son.
Waldron & Sprout.
Flue Cleaners.
Preston Mfg. Co.
- Foot-Power Machinery.**
J. M. Marston & Co.
W. F. & Jno. Barnes Co.
H. L. Sheppard.
- Forge Pumps.**
Mast, Foss & Co.
- Forges.**
Pitts. Port. Forge Co.
B. F. Sturtevant Co.
Miner & Peck Mfg. Co.
Stow Mfg. Co.
C. O. & A. D. Porter.
Smith-Courtney Co.
Penna. Machine Co.
Globe Machine Co.
Cincinnati Mill Mach. Co.
Geo. W. Heartley.
D. D. Colton & Co.
Stow Flex. Shaft Co. Ltd.
H. Harrington, Son & Co.
Lodge & Davis Machine Tool Co.
Lathe & Morse Tool Co.
- Gas Machines and Appliances.**
Harris. Boiler & Mfg. Co.
- Grain Elevator Supplies.**
H. W. Caldwell & Son.
- Grinding and Polishing Mohry.**
Mich. Emery Wheel Co.
The Tanite Co.
Springfield Emery Wheel Mfg. Co.
Waltham Emery Wheel Co.
Northampton Emery Wheel Co.
Norton Emery Wheel Co.
- Hammers, (Steam and Power).**
Bement, Miles & Co.
Hackney Hammer Co.
Long & Ailistatter Co.
Belden Machine Co.
Bradley & Co.
Knoxville Car Whl. Co.
- Handle Mohry.**
(See Wood-Working Machinery.)
- Hardware Specialties.**
L. S. Starrett.
Perfection Sash Bal. Co.
S. J. Fisher.
Belden Mch. Co.
Van Wagener & Williams Co.
Conkling Hanger Co.
Wier & Wilson.
Covert Mfg. Co.
- Hay Tools.**
Silver Mfg. Co.
- Heating Apparatus.**
W. R. Burgess Mach. Co.
West & Branch.
T. H. Brooks & Co.
Harris. Boiler & Mfg. Co.
Pierce, Butler & Pierce Mfg. Co.
Huyett & Smith Mfg. Co.
B. F. Sturtevant Co.
- Holding Machinery.**
Union Foundry & Machine Works.
Wright & Adams Co.
Am. Elect. Elevator Co.
A. K. Rarig Co.
Jno. F. Byers Mach. Co.
M. C. Bullock Mfg. Co.
Contractors' Plt. Mfg. Co.
Copeland & Bacon.
Diamond Prospect. Co.
Knoxville Car Whl. Co.
Vulcan Iron Works Co.
Ryan-McDonald Mfg. Co.
Webster, Camp & Lane Machine Co.
- Chain Hoist.**
Maris Machine Co.
H. Harrington, Son & Co.
- Hoop machines.**
Edwin Bell & Sons Co.
- Hose.**
John C. N. Gilbert.
Waterbury Rubber Co.
Hose Knocks.
John C. N. Gilbert.
Hydrant Co.
- Ladlow Valve Mfg. Co.**
- Hydraulic Machinery.**
Watson & Stillman.
Boomer & Boschert Press Co.
- Ice-Making Machinery.**
Tampa Ice Co.
Simpkin & Hillier.
Colum. Iron Wks. Co.
Van Winkle Gin & Machinery Co.
Hercules Iron Works.
Fred W. Wolf Co.
Frick Co.
- Injectors.**
Sherwood Mfg. Co.
American Injector Co.
Pemberton Injector Co.
National Tube Wks. Co.
Jenkins Bros.
Rae Mfg. Co.
- Insurance.**
American Casualty Insurance & Security Co.
Employers' Liability Assurance Corp'n., Ltd.
Hartford-St. Boiler Ins. and Insurance Co.
- Iron and Steel.**
Pennsylvania Steel Co.
Chas. Burgess.
B. M. Jones & Co.
- Iron Buildings and Roofs.**
Amer. Bridge & Iron Co.
- S. W. Frescoln.**
Pennsylvania Steel Co.
Berlin Iron Bridge Co.
- Iron Working Machinery.**
Wm. C. Codd.
Henley Mach. Tool Wks.
Bradford Mill Co.
Bement, Miles & Co.
Sebastian-May Co.
J. J. McCabe.
Stow Mfg. Co.
C. O. & A. D. Porter.
Smith-Courtney Co.
Penna. Machine Co.
Globe Machine Co.
Cincinnati Mill Mach. Co.
Geo. W. Heartley.
D. D. Colton & Co.
Stow Flex. Shaft Co. Ltd.
H. Harrington, Son & Co.
Lodge & Davis Machine Tool Co.
Lathe & Morse Tool Co.
- Jacks.**
Joyce, Criland & Co.
- Jacks (Hydraulic).**
Watson & Stillman.
- Knitting Machinery.**
Nye & Treddick.
- Laundry Machinery.**
F. M. Watkins.
Boss Washing Mach. Co.
Troy Laundry Machinery Co., Limited.
The A. M. Dolph Co.
Lights (Factory and Outdoor).
Keegan & Halpin.
T. H. Brooks & Co.
Locomotives.
(See also R. R. Equipment and Supplies.)
- N. Y. Equipment Co.**
Richmond Loc. & Mch. Wks.
H. K. Porter & Co.
Baldwin Loco. Works.
Lubricants.
Wm. C. Robinson & Son.
Lumber.
E. D. Albrow.
Jesse Thompson & Co.
T. J. Shryock & Co.
- Machinery.**
Southern Equip't Co.
Chisham Iron Co.
Wm. A. Sweetzer.
A. F. Bartlett & Co.
M. P. Satterthwaite.
Geo. R. Lombard & Co.
Chester Bertolette & Co.
Colum. Iron Wks. Co.
Penna. Mach. Co., Ltd.
Miner & Peck Mfg. Co.
Lawrence Machine Co.
Webster Mfg. Co.
M. C. Bullock Mfg. Co.
Knoxville Car Whl. Co.
S. C. Forsyth Mch. Co.
Warfield Mfg. Co.
Stow Flexible Shaft Co., Limited.
Morris Machine Wks.
Richmond Loc. & Mch. Wks.
Alex. K. Rarig & Co.
S. Morgan Smith.
McLanahan & Stone.
Vulcan Iron Works Co.
Geo. M. Clapp.
W. R. Polk, Jr.
Wm. C. Codd.
Southern Saw Mfg. Co.
J. E. Morris.
E. C. Atkins & Co.
H. Dudley Coleman Machinery Co., Limited.
Queen City Supply Co.
De Loach Mill Mfg. Co.
Talbot & Sons.
Watson & Stillman.
James Smith & Co.
Mineral Wool.
U. S. Mineral Wool Co.
Mining, Quarrying & Stone-Cutting Mohry.
Wright & Adams Co.
Allentown Foundry & Machine Co.
Gates Iron Works.
American Well Works.
Steam Stone Cutter Co.
Rand Drill Co.
Ingersoll-Sergeant Rock Drill Co.
- Diamond Prospecting Co.**
M. C. Bullock Mfg. Co.
Copeland & Bacon.
Jeffrey Mfg. Co.
Webster Camp & Lane Machine Co.
Lincoln Iron Works.
- Miscellaneous.**
Hornhorst, Littleford & Co.
Pulton Colville.
Barr Electric Mfg. Co.
St. Louis Steel Wire Brush Co.
A. N. Houghton.
Loomis Mfg. Co.
Budden & Son.
Adams & Woodson.
- Dodge & Sons.**
Wm. Baumgarten.
Chas. F. Willard & Co.
Standard Coal Co.
Culver & London.
W. M. Fuller, Jr.
Washington Hydraulic Press Brick Co.
Southern Information Bureau.
J. Murphy & Co.
Bristol's Mfg. Co.
Woolcott & West.
H. H. Babcock Co.
H. V. & H. W. Poor.
Cleveland Stm. F. & S. Co.
Hunt & Connell, Ltd.
John Ryan Co.
Colonnade Hotel.
Corporation Book Co.
Jno. G. Mengel & Co.
Smith Prem'r Type Co.
Claffen Mfg. Co.
C. A. Gambrill Mfg. Co.
The Bradstreet Co.
Anit & Wilberg Co.
Record Printing House.
Wm. H. Heffernan.
- Office Furniture.**
Derby & Kilmer Desk Co.
Globe Co.
A. H. Andrews & Co.
- Oils.**
Wm. C. Robinson & Son.
- Ore Washers.**
Hauk & Comstock.
McLanahan & Stone.
- Packing.**
Crandall Packing Co.
Garlock Packing Co.
James Smith & Co.
Page Belting Co.
Jenkins Bros.
- Paint.**
C. W. Tanner & Co.
H. W. Johns Mfg. Co.
Long Steel & Iron Roof Wks.
Ios. Dixon Crucible Co.
- Paper and Pulp Mill Machinery.**
The Moore & White Co.
- Perforated Metal.**
Hornhorst, Littleford & Co.
Harrington & King Perforating Co.
- Phosphor Bronze.**
Phosph. Bron. Smelt. Co.
- Pipe (Cast Iron and Steel).**
John Simmons Co.
American Pipe Mfg. Co.
The Glamorgan Co.
Chattanooga Foundry and Pipe Works.
Pipe Bend'g Wks.
Farrell & Rempe.
Jas. D. Cardell & Co.
Pipe Handling Tools.
Pancoast & Manie.
D. Saunders' Sons.
Plumbers' Supplies & Tools.
H. Mueller Mfg. Co.
Wm. C. Codd.
John Simmons Co.
West & Branch.
Louis W. Gay.
Haines Jones & Cadbury Co.
Pancoast & Manie.
D. Saunders' Sons.
Presses (Power).
H. Dudley Coleman Machinery Co., Limited.
G. H. Bushnell Co.
Watson & Stillman.
Cardwell Machine Co.
Miner & Peck Mfg. Co.
Boomer & Boschert Press Co.
- Pulleys, Shafting and Hangers.**
Struthers, Wells & Co.
P. Fryhill.
Todd Pulley & Shafting Works.
C. & A. Potts & Co.
Walker & Elliott.
Webster Mfg. Co.
Van Winkle Gin & Mach. Co.
Fittsmons & Co.
Warfield Mfg. Co.
Taper-Sieve Pul. Wks.
James Smith Woolen Machinery Co.
Webster, Camp & Lane Machine Co.
- Pumps (Hand and Power).**
Watson & Stillman.
American Well Works.
Deming Co.
Van Winkle Gin & Mach. Co.
- Pumps, Oil.**
Sherwood Mfg. Co.
- Pumps (Steam).**
Union Foundry & Machine Works.
Laidlaw & Dunn Co.
Voissard, Waechter & Co.
Wm. C. Codd.
Smith & Vail Co.
Morris Machine Co.
J. H. Day & Co.
Battle Creek Machy. Co.
Van Duzen & Tift.
Watson & Stillman.
American Well Works.
Canton Steam Pump Co.
Lawrence Machine Co.
Barr Pump'g Engine Co.
Deane S. P. Co.
John Maslin & Son.
Hy. R. Worthington.
Falsometer Stm. F. Co.
Valley Pump Co.
- Dean Bros. Stm. P. Wks.**
Blakelee Mfg. Co.
Irvin Van Wic.
The A. S. Cameron Stm. Pump Works.
Jno. H. McGowan & Co.
Buffalo Stm. Pump Co.
Boggs & Clarke.
- Punching and Shearing Mohry.**
G. D. Colton & Co.
Long & Ailistatter Co.
- Railroads.**
C. L. & W. R. R.
C. H. & D. R. R.
Queen & Crescent Route Valley Railway.
W. & L. E. Ry.
C. & C. R. Ry.
Illinois Cent. Railroad.
Erie Railway.
Piedmont Air Line.
Western Md. R. R.
- Railroad Equip't and Supplies.**
(See also R. R. Equip't and Supplies.)
A. S. Males & Co.
A. Ed. Morris.
Robinson & Orr.
N. Y. Equipment Co.
Ross-Meehan Brake Shoe Foundry Co.
Weir Frog Co.
Wm. A. Cather & Bro.
Corey Car & Mfg. Co.
Humphreys & Sayce.
Carline Mfg. Co.
Richmond Loc. & Mch. Wks.
H. K. Porter & Co.
Penna. Steel Co.
Baldwin Locomo. Wks.
Wm. Minnigerode.
- Real Estate.**
(See also Towns.)
R. L. Gregor & Co.
John C. Robertson.
Abigdon R. E. & I. Co.
B. A. Connelly.
P. C. Humphry.
P. L. Poindexter.
- Road Machinery.**
Southern Equip't Co.
Harrisburg Foundry & Machine Works.
Vulcan Road Mach. Co.
F. C. Austin Mfg. Co.
- Rolling Mill Mohry.**
Union Foundry & Machine Works.
Geo. M. Clapp.
Lloyd Booth Co.
- Roofing.**
H. F. Watson Co.
Cushman Iron Co.
W. H. Fay Manilla Co.
Niles Iron & Steel Roofing Co.
Globe Iron Roofing & Corrugating Co.
Merchant & Co.
J. H. Johns Mfg. Co.
J. H. Kiler & Co.
Long Steel & Iron Roofing Co.
Sims Mfg. Co.
Cincinnati Corrugating Co.
Eliet-Warren Mfg. Co.
Empire Paint & Rfg. Co.
Canton Steel Roof'g Co.
Stokes Iron Roofing Co.
Holton Iron Roofing Co.
Cambridge Roofing Co.
The Berger Mfg. Co.
- Rubber Goods.**
Waterbury Rubber Co.
- Saws.**
(See also Woodworking Machinery.)
Southern Saw Mfg. Co.
Emerson, Smith & Co.
E. C. Atkins & Co.
Hy. Diaton & Sons, Inc.
W. F. & John Barnes Co.
Peter Gerlach & Co.
- Saw Mill Machinery.**
H. P. Edmond.
A. F. Bartlett & Co.
H. Dudley Coleman Machinery Co., Limited.
Greer Machinery Co.
A. B. Farguhar Co.
Jacob J. Mohr.
U. S. Machine Co.
De Loach Mill Mfg. Co.
Frick Co.
- Scales.**
Buffalo Scale Co.
Jones of Birmingham.
Sorrell Saws.
H. L. Esch.
W. F. & John Barnes Co.
- Sheet Metal Working Machinery.**
E. W. Bliss Co., Ltd.
Niagara Stamping and Tool Co.
Geo. W. Heartley.
Shingle and Stave Machinery.
(See Woodworking Machinery.)
- Shipyards.**
Toledo Corbice Works.
E. Van Noorden & Co.
Soap-makers' and Butchers' Mohry.
H. Wm. Dopp & Son.
A. W. Houchin.
- Spark Arrestors.**
Jesse Bros.
- Stand-Pipe.**
I. C. McNeil Co.
Sharon Boiler Wks. Ltd.
- Steamers.**
Furness Line.
Bay Line Steamers.
Balto. Stor. & Light Co.

[Continued on Page 65]



FRICION CLUTCH.

THE JAMES SMITH WOOLEN MACHINERY CO.

WOOLEN MACHINERY AND CARD CLOTHING OF EVERY DESCRIPTION.
SHAFTING, HANGERS, PULLEYS AND FRICTION CLUTCHES.

Hub Friction Clutch Pulleys will run 1,000 Revolutions.

411 to 421 Race Street,

PHILADELPHIA, PA.



SECTIONAL VIEW.

ELEVATORS

MORSE ELEVATOR WORKS.

MORSE, WILLIAMS & CO. ELEVATORS

Successors to
OLEM & MORSE.

Manufacturers and Builders of HYDRAULIC STEAM,
BELT and HAND-POWER PASSENGER and FREIGHT

ELEVATORS

With most approved Safety Devices.
Dumb-Waiters, Automatic Hatch-Doors, &c.

Office, 1105 FRANKFORT AVE.; Works, FRANKFORT AVE., WILDEY AND SHACKANAXON STREET, PHILADELPHIA, PA.

Send for Illustrated Circulars.

Branch Office, 108 Liberty St., New York.

MORTON, REED & CO., 2 & 5 German St., Agents for Baltimore.

Boston Office, 14 High St.

SPECIAL NOTICE.—Two handsome photo-engraved display sheets entitled
"RECENT IMPROVEMENTS IN AIR COMPRESSORS,"
"RECENT IMPROVEMENTS IN ROCK DRILLS,"

mailed free to any one who will cut out this advertisement and mail it to us with his name and address.

INGERSOLL-BERGANT DRILL CO., 18 Park Place, New York.

• WE •
• CLAIM •
• THE •
• DISTINCTION •

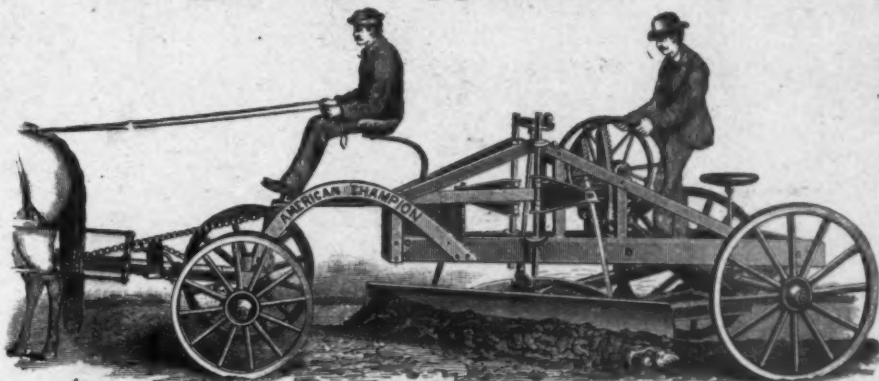
Of having the **LARGEST** and **FINEST** factory in the
WORLD devoted exclusively to the manufacture
of all such material as is needed in the erection
of a perfect **AUTOMATIC SPRINKLER SYSTEM**.
• THE **NERACHER SPRINKLER CO.** • WARREN, O.

THE WAY TO BUILD ROADS IN THE SOUTH.

CONTRACTORS,

SAVE YOUR MEN.

Grade Streets,
Build Railroads,
Cut Out Gutters,
Fill Trenches
and
Underbid Everybody.



COUNTIES,

SAVE YOUR MONEY.

Build Roads,
Drain Farms
and Keep all Public
Highways in Good
Repair at Half Cost
of old way.

Address THE SOUTHERN EQUIPMENT CO., Chattanooga, Tenn., or American Road Machine Co., Kennett Square, Pa.

THE MARION STEAM SHOVEL CO.

MANUFACTURERS OF



Barnhart's Steam Shovels, Dredges, Ditching Dredges, Railroad Ditchers, Wreckers, Ballast Unloaders, &c. Our Steam Shovels are largely used on Railroads and by Contractors, Brick Manufacturers, and in excavating Iron Ore, Handling Stock Ore, Stripping Coal Fields and Stone Quarries, and are a most desirable machine for any use where excavating machinery can be used. All of our machines guaranteed to give entire satisfaction; otherwise may be returned at our expense. For illustrated Catalogue, Photographs, and any further information desired, address

THE
Marion Steam Shovel Co.

801 WEST CENTRE ST.

Marion, Ohio.



BARNHART'S BALLAST UNLOADER. No center rib or leader is required.

THE SOUTHERN SAW MFG. CO.

ATLANTA, GA.

Manufacturers of

HIGHEST GRADE SAWS

Also Dealers in the Following Saw Mill Specialties:

Saw Maker's Anvils.
Straight Edges.
Bracing Tables.
Bracing Tongs and Clamps.
Filing Clamps.
Swages. Files.
Wilkins' Saw Stretchers.

Gummer Dies.
Saw Mandrels.
Cant Hooks.
Emery Wheel Dressers.
Lacing and Belt Hooks.
Pulleys. Shafting.
Wood Split Pulleys.

Hammers.
Leveling Tables.
Portable Forges.
Press Punches.
Dies. Gauges.
Jointers.
Saw Gummings.

Automatic Saw Fliers.
Knight's Dogs.
Board and Log Scales.
Emery Wheels.
Hangers.
BELTING—Rubber, Leather and Cotton.

Prompt Attention Given to all kinds of Repair Work and Satisfaction Guaranteed.

Write for Catalogue and Prices.

Clean Your Boiler Tubes with Abrams Expansion Flue Brush.

Write ST. LOUIS STEEL WIRE BRUSH CO.
ST. LOUIS, MO., for Circular.



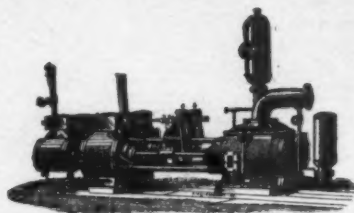
THE DEANE STEAM PUMP COMPANY,

HOLYOKE, MASS.

STEAM • PUMPING • MACHINERY

OF EVERY VARIETY.

Send for New Catalogue.



NEW YORK, BOSTON,
CHICAGO, PHILADELPHIA, ST. LOUIS.

Water Works ENGINES

FOR THE SUPPLY OF CITIES AND TOWNS.

OUR SPECIALTY.

WORTHINGTON STEAM PUMPS

SEND FOR ILLUSTRATED CATALOGUE.

WATER METERS

HENRY R. WORTHINGTON, INDEPENDENT CONDENSERS

NEW YORK.

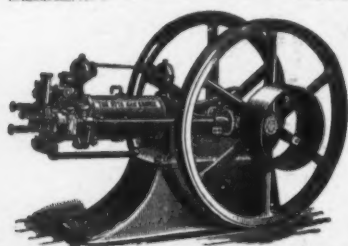
Boston

Philadelphia

Chicago

St. Louis

St. Paul



Over 33,000 in use. OTTO GAS ENGINE

20 to 70 per ct. less Gas Consumption than ANY OTHER ENGINE.

Working Without Boiler, Steam, Coal, Ashes or Attendance.

Started instantly by a Match it gives full power immediately. When Stopped all Expense Ceases.

FOR COAL GAS, GASOLINE, NATURAL GAS, PRODUCER GAS.

No explosions, no fires nor cinders, no gauges, no pumps, no engineer or other attendant while running. Recommended by Insurance companies. UN-
SURPASSED IN EVERY RESPECT for hoisting in warehouses, printing, ventilating, running small shops, &c. Sizes, ½ to 100 Horse-Power.

Branch Office, 151 Mon-
roe St., Chicago, Ill.

OTTO GAS ENGINE WORKS, Schleicher, Schumm & Co. 33D AND WALNUT STS. PHILADELPHIA, PA.

WE SELL Twisters,

Warpers, Spoolers, Reels, Temples,

Burnished Spinning Rings,

Etc., Etc.



Large 49 D
RABBETH SPINDLE.

Especially Adapted for Southern Cotton Mills.

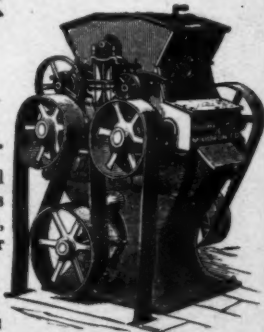
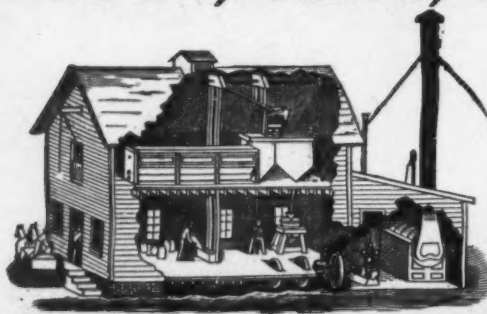
GEO. DRAPER & SONS, Hopedale, Mass.

FLOUR, CORN, PORTABLE AND ROLLER MILLS

COMPLETE. ALL SIZES.

We guarantee Highest Product in our Custom or Merchant Mills, which we will contract to build complete—over 1,000 have been equipped by us. Our Portable Mills have been awarded Highest Prizes at Exposition Fairs. French Buhr Grist Mills, over 3,000 in use, complete with sheller, \$115. Correspondence solicited. Write for pamphlet. "Mills and Milling" sent free.

NORDYKE & MARMON CO., Indianapolis, Ind.



For SUCTION, WATER, STEAM, GAS, AIR, ACIDS and for every purpose to which a Hose can be applied.

RESISTANCE to Great Pressure; Unobstructed Flow of Water; Increased Flexibility and Perfect Protection are some of its Advantages.

WE GUARANTEE every foot sold to withstand constant service for such longer period as to render its actual cost much less in the end. Every wind of the wire can be cut without loosening or uncoiling.

The making, vending or use of any SERVICEABLE ARMORED WIRE-BOUND HOSE not of our manufacture is an infringement on one or more of our patents, and any violation will meet with instant prosecution. Brass plates mark each coil and admonish infringers, whether evil-minded or ignorant.

WATERBURY RUBBER COMPANY,

Sole Manufacturers and Proprietors,

49 WARREN STREET,

NEW YORK.

THE EMPLOYERS' LIABILITY ASSURANCE CORPORATION, Limited,

OF LONDON, ENGLAND.



Trustees for the United States:

OLIVER W. PEABODY, Esq.,
KIDDER, PEABODY & Co., Boston.
CHAUNCEY M. DEPEW, Esq.,
Pres. N. Y. Cen. and H. & R. R. Co., New York.
SAMUEL SLOAN, Esq.,
Pres. Del., Lacka. and West. R. R. Co., New York.
WM. A. FRENCH, Esq., Pres. Mass. National Bank.
ABRAHAM FRENCH CO., Boston.
HOW. JOHN LOWELL, Boston.

ENDICOTT & MACOMBER, Managers for the United States,

Deposited in United States,

\$845,000.00.

Policies issued giving full protection to Employers against loss by Claims from Employees on account of Accident. Rates Proportioned to Risks of Occupation. One Premium the only Payment during year. No Contingent or other Liability on part of Employer.

Employers with Pay Rolls of \$100,000.00 already covered in United States. No Employer should be without this Protection. Cases Investigated by Competent Inspectors and considered by Eminent Counsel. If liability shown, Claims settled without litigation.

71 KILBY STREET, BOSTON.

AGENTS.—SAMUEL APPLETON, 28 Central St., Boston; EDMUND DWIGHT, JR., 51 Cedar St., N. Y.; Middle Department, TATTEALL PAULDING, Resident Adviser; JOHN G. HOOVER, Mgr.; JOHN M. ASH, JR., General Agent, 418 and 420 Walnut St., Philadelphia; Maryland Department, LAWSON & MCKIM, General Agents for Maryland and the District of Columbia, 23 S. Holiday St., Baltimore; GEO. A. GILBERT, 226-228 LaSalle St., Chicago; F. D. HINSHEN & BRO., 120 N. Third St., St. Louis; B. M. ALLISON, State Agent for Alabama and Tennessee, Birmingham, Ala.



MANUFACTURERS' RECORD

A Southern Industrial, Railroad and Financial Newspaper.

VOL. XX. No. 20. }
WEEKLY.

BALTIMORE, DECEMBER 19, 1891.

{ \$4.00 A YEAR.
{ SINGLE COPIES, 10 CENTS.

Manufacturers' Record

PUBLISHED EVERY SATURDAY BY THE

MANUFACTURERS' RECORD CO.

President, Secretary and Treasurer,
RICHARD H. EDMONDS, WM. H. EDMONDS.

RICHARD H. EDMONDS, EDITOR.
WM. H. EDMONDS, BUSINESS MANAGER.

OFFICE:
EXCHANGE PLACE AND COMMERCE ST.
BALTIMORE.

THOS. P. GRADY, Special Southern Correspondent.

CLARENCE P. DAY,
MANAGER OF WESTERN OFFICE,
1101 & 1102 CHAMBER OF COMMERCE BUILDING,
CHICAGO, ILL.

LONDON OFFICE:
21 BEDFORD STREET, COVENT GARDEN, W. C.
ROBERT McCLEURE, MANAGER.

SUBSCRIPTION, - - - \$4.00 a Year.
To Foreign Countries, - - - 26s. 6d. a Year.

BALTIMORE, DECEMBER 19, 1891.

THE Llano ore region of Texas is attracting great attention in that State, as shown by an article from the San Antonio Express published in this issue of the MANUFACTURERS' RECORD. It is now announced that an application has been made for an amendment to the charter of the San Antonio & Aransas Pass Railroad Co. to enable it to build a line from San Antonio to Llano.

MR. WILLIS L. RINGO, of Ashland, Ky., writes to the MANUFACTURERS' RECORD that New York and Cincinnati parties have secured a franchise for building a railroad and traffic bridge across the Ohio river between Ashland and Ironton, Ohio, and that they will commence making the survey next week. They promise to have the bridge built before the end of 1892.

TIN AND TERNE, a new Pittsburgh journal devoted to the tinplate industry, in its first issue gives a list of tinplate works actually under construction, omitting entirely those that as yet are simply projected, and its summary shows that over \$3,000,000 is now invested in plants producing or preparing to produce tinplate of purely American manufacture, and that in the course of a few months over 37,000 boxes of tinplate will be produced in this country each week.

A Danger to the South.

A great many well-informed people claim, and with some reason, that persistent efforts are being made by the "bears" to depress the price of cotton, and that after the crop is out of the farmers' hands an equally as vigorous effort will be made to advance the price. Herein is a danger to the South. Next spring if the farmer finds that cotton is high he is apt to forget his resolutions made while it is low to plant less cotton and more grain, and delude himself into believing that he will raise just one more big crop and get big prices for it, because, he will argue, the stock on hand is small and prices high, and this will certainly keep up prices through the next season. Vain delusion. He will only be playing a losing game again. If the Southern farmer wants to get through the season of 1892-'93 in good shape he will have to raise his own foodstuffs next year, because every indication points to continued high prices for grain and provisions. The Southern farmer ought not to be tempted into raising cotton to the exclusion of foodstuffs, no matter how high cotton may go this spring.

Stop Fighting the Railroads.

Will the politicians of the Southern States never learn to let the railroads alone? and how long are the business men of these States, who are vitally interested in attracting capital for their development, going to sit down quietly and let the politicians pass laws that inevitably retard railroad building and the investment of outside capital? are questions that demand consideration. As though the bitter experience of Texas, with its alien-land law and its railroad commission, were not enough to show the effect of such hostile legislation, strong efforts are being made to establish a railroad commission in

Virginia and to make the railroad laws of South Carolina even more unjust and burdensome than they now are. Virginia owes its present magnificent development, its many new furnaces and mines, its great coal business at Norfolk and Newport News, its immense foreign shipping business and regular European steamship lines at these ports to the work of the railroads. It is such men as Mr. Kimball and Mr. Ingalls that have opened the way for greater prosperity than the Old Dominion ever knew, even in its palmiest days. These men have drawn not simply millions, but tens of millions of dollars into Virginia, and they have scarcely commenced in the great work that they can do if the people of that State are wise enough to insist that the politicians shall keep their hands off the railroads.

The business men of Virginia and other States, if they have any regard for their own interests or for the prosperity of their section, must make their influence felt, and do it at once. The politicians of the South are its greatest enemies.

The Texas Alien-Land Law Unconstitutional.

THE MANUFACTURERS' RECORD congratulates the people of Texas that the alien-land law, which has proved such a curse to the State, has been declared unconstitutional by the Supreme Court. Once more Texas is open for the investment of outside capital, and the bitter experience of the past will, we think, prove a guarantee against the enactment of any such legislation in the future. Texas, with all its vast resources awaiting development, now invites capitalists to put their money there with the assurance of protection to it.

THE American Manufacturer, in its monthly report of the production of pig iron, states that on December 1 there were 309 furnaces in blast, with a weekly capacity of 193,009 tons, or at the rate of nearly 12,000 tons a week more than for the corresponding date of last year.

The President's Message.

The President's message is a document of much more than ordinary interest. It is a calm and candid presentation of the public business in its relation to domestic and foreign affairs, and is remarkably free from partisan bias.

While every subject discussed is of general interest, there are two that are of special importance to the South. One of these is the brief statement of the progress of the three parties now in the field making surveys for the connecting links of the proposed Intercontinental Railway. Nearly 1,000 miles have been surveyed, including the most difficult part—that through Ecuador and the southern part of Colombia. The reports of the engineers are very satisfactory, and show that no insurmountable obstacles have been encountered. It will be remembered that this railroad was projected at the Pan-American Congress; that an international commission was appointed which met in Washington and adopted the plan now in course of execution, and that when the parties in the field have finished their surveys and made up their reports, the commission will determine whether to recommend that the proposed road be constructed or to report that the plan is not feasible. The President's brief statement that no insurmountable obstacles have been met with in the most difficult territory to be traversed is an assurance that this enterprise will eventually be undertaken.

More than any other one section of the Union, the South is interested in the success of the Nicaragua canal. Of this grand undertaking the President says:

I deem it to be a matter of the highest concern to the United States that this canal, connecting the waters of the Atlantic and Pacific oceans and giving to us a short water communication between our ports upon those two great seas, should be speedily constructed and at the smallest practicable limit of cost. The gain in freights to the people, and the direct saving to the government of the United States in the use of its naval vessels, would

pay the entire cost of this work within a short series of years. The report of the Secretary of the Navy shows the saving in our naval expenditures which would result.

The Senator from Alabama (Mr. Morgan), in his argument upon this subject before the Senate at the last session, did not overestimate the importance of this work when he said that "the canal is the most important subject now connected with the commercial growth and progress of the United States."

The President is afraid that if this canal shall be dependent for its construction on funds raised by the methods now in vogue, it will necessitate higher tolls and constitute a heavy and altogether needless burden upon our commerce and that of the world. He says:

Every dollar of the bonds and stock of the company should represent a dollar expended in the legitimate and economical prosecution of the work. This is only possible by giving to the bonds the guarantee of the United States government. Such a guarantee would secure the ready sale at par of a 3 per cent. bond from time to time as the money was needed. I do not doubt that, built upon these business methods, the canal would, when fully inaugurated, earn its fixed charges and operating expenses. But if its bonds are to be marketed at heavy discounts and every bond sold is to be accompanied by a gift of stock, as has come to be expected by investors in such enterprises, the traffic will be seriously burdened to pay interest and dividends. I am quite willing to recommend government promotion in the prosecution of a work which, if no other means offered for securing its completion, is of such transcendent interest that the government should, in my opinion, secure it by direct appropriations from its treasury.

A guarantee of the bonds of the canal company to an amount necessary to the completion of the canal could, I think, be so given as not to involve any serious risk of ultimate loss. The things to be carefully guarded are the completion of the work within the limits of the guarantee, the subrogation of the United States to the rights of the first-mortgage bondholders for any amounts it may have to pay, and in the meantime a control of the stock of the company as a security against mismanagement and loss.

These sensible suggestions are most timely. They clearly state the reasons why Congress should give the indorsement of the government to the securities of the canal company, and so enable it to prosecute the work with economy and with vigor. Aside from commercial reasons, there are others of far-reaching moment. In case of trouble with foreign nations we need to have such a short cut between the two oceans that our coast cities East and West may be protected by our ships of war whenever threatened by a hostile fleet. The naval depot of Great Britain for her Pacific ocean cruisers is at Esquimaux, on Vancouver's island, near the mouth of the Straits of Fuca. Immense supplies of food, clothing and ordnance are kept there, as well as whatever might be needed for the repairs of ships. Within a week, under orders from the Admiralty, two parties of mariners have been sent across the continent from either side by the Canadian Pacific Railway, the evident purpose being to ascertain how rapidly British war

ships could be supplied with fresh crews in time of need. It is to be hoped that this country will never be compelled to engage in another war, but one of the surest measures to guard against that calamity is to make our harbors impregnable, and to keep a first-class naval force in readiness to act as a coast patrol and prevent the approach of a foe.

Every patriotic American must sincerely hope, as does the President, "that neither party nor sectional lines will be drawn upon this great American project, so full of interest to the people of all our States, and so influential in its effects upon the prestige and prosperity of our common country."

Railway Progress in the South.

Nothing could better illustrate the general advance of the South than the census bulletin giving railway transportation statistics in the States of Virginia, West Virginia (inclusive of that portion north of Parkersburg), North Carolina and South Carolina. A summary of several items of interest shows the following:

Items.	1889.	1890.
Number of passengers carried.....	9,493,825	3,628,535
Tons of freight moved.....	23,582,194	6,773,167
Earnings from passenger service.....	\$8,934,859 43	\$4,038,284 27
Earnings from freight service.....	\$21,293,843 67	\$9,778,448 71
Total earnings and income.....	\$31,215,103 24	\$14,235,837 09
Total expenditures.....	\$31,711 4'9 19	\$12,808,597 00
Length in miles of all lines operated.....	8,423 87	4,954 5
Total number of employees.....	30,857	32,034
Number of cars in passenger service.....	1,617	575
Number of cars in freight service.....	32,319	9,843
Number of locomotives.....	1,234	681
Number of stations on all lines.....	1,613	681
Receipts per mile per passenger (cts.).....	2.207	3.024
Receipts per mile per ton of freight (cts.).....	0.766	1.459

This report shows that the volume of passenger and freight traffic has, in round figures, nearly quadrupled, while the earnings have a little more than doubled. The decline in rates is shown by a decrease in receipts per mile per passenger from 3.024 cents in 1880 to 2.207 cents in 1889, and in freight per ton per mile from 1.459 cents to 0.766 cents. In ten years freight rates, as shown by these figures, have decreased just one half, and yet some of the political demagogues who misrepresent the Southern States in their legislatures are constantly seeking to impose restrictions and burdens upon the railroads that tend to keep away all capital.

A New Era in Southern Advancement.

The completion of the great bridge of the Norfolk & Western Railroad system at Kenova, W. Va., is a notable event. It is the first crossing of the Ohio river above Cincinnati. It is the completion of a link in the great railroad system that will make Norfolk one of the great grain-shipping ports of the Atlantic coast. It will give the truck and fruit farmers of Eastern Virginia new markets in the great cities of the Ohio valley and the Northwest. It will put the furnaces and factories of the Valley of Virginia into direct communication

with a multitude of new customers. It will make Kenova a place of large importance. It will add immensely to the value of the Virginia and West Virginia coal fields, while Kenova will be a rival of Pittsburg for the coal trade of the many flourishing cities on the Ohio and Mississippi rivers.

Kenova will be the headquarters of the Ohio division of the Norfolk & Western system. Its construction and repair shops are to be located there. Their construction is already under way. The railroad is now in operation for 50 miles east of Kenova. By midsummer it will be completed to Pocahontas, Va., and then this system will be entirely finished, and Pullman sleepers will run regularly between Norfolk and Chicago. This consummation of a great work will be the commencement of a new era in the South's development.

Coal in Texas.

The high price of coal in Texas has retarded the industrial growth of that State. With an abundance of good steam and coking coal at a moderate cost, there would be very rapid progress in its manufacturing interests. It looks as though this is to be secured. Recent investigations show good coal in many parts of the State, and the field is so inviting for development that the capital needed for opening mines will doubtless be secured, notwithstanding the unwise laws which retard the flow of money to that State. Last week the MANUFACTURERS' RECORD published a letter showing that one company at Weatherford is preparing to put out 1,000 tons a day, which is said to be good steam and coking coal. There are reports of important coal development near Eagle Pass. Mr. J. L. Thomas, of the Wichita Valley Railroad, is quoted by the Dallas News as saying that in Montague country there is fine coal which can be laid down at Dallas at \$2.50 to \$2.75 a ton. At these prices, or even at somewhat higher figures, there would be a great demand for good coal. With the coal developments in progress and in prospect, added to the value of lignites as fuel, as exhibited in a recent issue of the MANUFACTURERS' RECORD, and the abundance of high-grade iron ores, there seems to be good ground for looking forward to a very large iron and steel industry in Texas.

A CHARTER will be asked of the Virginia legislature for a railroad from Roanoke and Salem, Va., through Craig county and on to the coal fields. Such a line, when built, as will almost certainly be done at some time, will bring the fine iron ores of Craig county within a short distance of the furnaces at Roanoke and Salem, and prove of great value to these places as well as to the owners of the splendid ore properties of Craig county, to which reference has often been made in the MANUFACTURERS' RECORD.

Cotton Manufacturing in the South.

The predictions so persistently made by the MANUFACTURERS' RECORD that the cotton mills must and will go to the cotton fields, and that the South will contro! the manufacture of cotton goods, are admirably voiced by Col. A. K. McClure, editor of the Philadelphia Times, who in a recent issue of that paper says:

"Westward the star of empire takes its way," and just as assuredly the cotton manufacturing trade, upon which the New England States have built up their prosperity and multiplied growth, is now going to the South and planting itself where it can find the raw material growing around its mills and where there is labor plenty for all demands that can be made upon it. This may not be a pleasant outlook for New England, but it is the one which it has to face. Just as Manchester, England, ceased to be a cotton-manufacturing city because other towns and villages could build cheaper mills, have lower rents and taxes, and find an unlimited amount of labor from their suburban surroundings, so Lowell, Manchester, Lawrence and Fall River have to look to a not far-distant time when the entire low-count and coarse-grade-cotton trade will have deserted them for Southern labor centers.

For some years the cotton manufacturers and the papers of New England ridiculed the idea that the South would ever develop a large cotton-manufacturing business just as the Pennsylvania ironmakers denied that this section would ever become a large producer of iron. When the increase in cotton mills and furnaces disproved these predictions, the claim was advanced that the South could never make the higher grade of goods. "The South hasn't the skilled labor for anything but the coarsest goods; its climate is enervating; it lacks experience and capital, and at the best it can only make the lowest class of goods," was the oft-repeated cry of those who were determined not to see the inevitable. Just as the arguments against the South ever developing a large business even in the manufacture of the coarser cotton goods and pig iron were swept away by the logic of events, so are the arguments against its making higher classes of goods being proved without foundation. Every day brings forth new evidence to show that the South is successfully pushing into the production of fine goods, and discussing this subject the New York Daily Commercial Bulletin, an authority in cotton-goods matters, says:

In the last six years the manufactures of the Eastern corporations have been greatly improved in numerous instances, in consequence of a more general advance in the output of cloth by the Southern mills. Six years ago the price of cotton was 15 per cent. higher than now, and the price of three-yard sheetings the same or less than they now are. That was the result of the boomerang that succeeded the boom of 1880. It was enough for the mills, and the diversion of production to four-yard goods then begun has steadily increased until now the most popular, if not the best, makes of that quality are made in South Carolina. (Italics ours.) Further than this, the out-

turn of yarns have been greatly improved, and 20s to 40s are now made where 20s were the highest.

The fabrics of the Enoree, Henrietta, Pacolet, Spartan, Pelzer, Clifton, Enterprise, Jno. P. King Co., Piedmont, Nashville, Riverside and others that might be named are the best evidence of the rapid advance that has been made in finer yarn fabrics, that is better illustrated by the construction of cloths from 20 to 32 yarns, whereas six years ago 12 to 13 yarns were the highest numbers woven in any quantity.

Attention is directed to what the Southern mills are doing in order to stimulate Eastern manufacturers to greater effort in the same direction. Otherwise we shall expect to see the Southern mills outdoing their Eastern competitors in the use of combing machines for making fine yarn cloths for converters, finishers and printers. Low-cost cotton of a superior quality of long staple is the opportunity for cotton manufacturers to make a diversion from old ruts. The consuming demand will have such fabrics, and if this country cannot supply them they will seek those markets where what they want can be had. Combing machines are not very expensive, and the additional cost of the yarn is more than compensated for by the better price for the cloth. The time is ripe for the change, and the first to make it will acquire a ready market for their products.

The Effect of Bad Railroad Laws.

In reply to a Texas correspondent who desired to enlist Mr. C. P. Huntington in several railroad enterprises in that State, that eminent railroad builder and capitalist wrote that experience in operating railroads and Texas restrictions compelled him to decline to consider the building of additional lines in its territory. This leads the New York Tribune to say:

The people of Texas, and of the other States that have followed her example, are likely to find out before long that the results of hostile railroad legislation strike in more than one direction. They will find it out when they see the work of extending railroad communication brought to a standstill by the indisposition of capital to seek an investment where the proper control over its property is denied it. Texas has a vast territory still undeveloped, and needs many hundred miles of railroad to make its great resources serviceable. The agitators of the Farmers' Alliance school, having induced the legislature to treat the railroads as though they were devouring ogres, may meet henceforth with increasing difficulty in showing where the net advantages of their policy come in.

THE "whaleback" steamers seem destined to revolutionize the carrying trade wherever they are introduced. They can, it is claimed, be built at a lower cost and be operated at a lower cost than any other class of steamships. They are now being built as rapidly as possible for the Lake trade, and one of these boats, the Charles W. Wetmore, recently took about \$500,000 worth of machinery from Philadelphia and Wilmington around to Puget sound, where a large "whaleback" ship-yard is to be established. A similar yard will be established somewhere on the Atlantic coast, and the South ought to secure it. These steamers could be used to the great advantage of the South in the trade at all the South Atlantic and Gulf ports. They

would furnish cheap transportation for coal, iron and other freight, and expand the demand by reducing the cost. A large steamship owner recently suggested to the writer that they could be utilized in carrying from Galveston to Mobile and Pensacola, for use in Alabama furnaces, the high grade Bessemer ores of Llano when the railroad to the latter place is opened, taking coal on return voyages, and also in the shipment of these ores to Northern furnaces. With a decrease in freight rates the shipments of coal, iron ore, iron, etc., from Southern ports would increase very rapidly.

At a meeting of the stockholders of the Kimball Town Co. in Chattanooga last Tuesday the contract with the English syndicate previously mentioned in the MANUFACTURERS' RECORD was ratified and arrangements made for putting it into effect. The indications now are that this deal will be closed up finally in February, and that the development of this great property will be carried on in such a way as to materially aid in the prosperity of a wide section of country.

PROFESSOR HOLMES, the State geologist of North Carolina, is quoted as having made some important discoveries of copper and iron ore, including high-grade magnetic ore, during his recent investigations in Western Carolina.

THE J. M. Moore Shoe Co., of Atlanta, Ga., recently reported in the MANUFACTURERS' RECORD as organized and to establish a shoe factory, will make a fine grade of shoes, equal to the best grades turned out of Northern factories.

LARGE deposits of tripoli have, it is reported, been found near Meridian, Miss. Mr. K. M. Cunningham, of Mobile, Ala., in a letter to the Meridian News, gives an account of these deposits, which are said to be of great extent.

THE Eastern cast-iron-pipe manufacturers are finding it such hard work to compete with the Southern pipemakers that they are endeavoring to form a combination to strengthen their position.

UNDER the title of "The Menominee Iron Range" Mr. Walter R. Nursey, of Iron Mountain, Mich., has issued a 150-page pamphlet designed to show that the South is "not in it" in comparison with that iron region. We admire Nursey's devotion to his section, but he has very slight knowledge about the iron resources of the South.

GEO. H. HULL & Co. have moved from their old quarters in Louisville, Ky., to more desirable offices in the Louisville Trust Co.'s building, where they will be pleased to have their friends call in future.

HAVE you real estate notes, municipal or county bonds that you want to convert into cash? If it is a Southern note or bond you can advertise it free, four times, in the MANUFACTURERS' RECORD.

The Lake Superior Iron-Ore Production in 1891.

The year 1891 marked a decided restriction in the output of Lake Superior iron mines. This was the logical sequence of the "big year" 1890, when the production reached the enormous figure of more than 9,000,000 tons. The result has been a sharp reduction in the receipts at Lake Erie ports, though the sales for the year have been very large. Official figures collected by the Iron Trade Review, according to its annual custom, show that there were on dock at Lake Erie ports at the opening of navigation May 1st, 1891, 2,400,000 gross tons of ore. The total receipts for the season of 1891 (closing December 1st) were 4,939,684 tons, making a total of 7,339,684 tons. Of this there were shipped to furnaces by rail from Lake Erie ports during the season of 1891, 3,831,195 tons, leaving on dock December 1st, 3,508,489 tons, as against 3,893,487 tons on dock at the close of navigation last year. This shows a decrease of ore on dock this year of 384,998 tons from last year at the same time. The figures as to total receipts for the past nine years are given in the subjoined table:

TOTAL RECEIPTS AT LOWER LAKE PORTS FOR NINE YEARS.	
1883.....	1,692,689
1884.....	1,841,817
1885.....	1,593,959
1886.....	2,270,554
1887.....	3,439,198
1888.....	3,783,659
1889.....	5,856,344
1890.....	6,874,664
1891.....	4,939,684

The following table shows the iron ore stocks on hand at the close of navigation in the years respectively stated:

IRON ORE ON DOCK AT CLOSE OF NAVIGATION.	
1883.....	943,095
1884.....	1,038,135
1885.....	1,048,940
1886.....	966,472
1887.....	1,558,861
1888.....	1,848,555
1889.....	2,607,166
1890.....	3,893,487
1891.....	3,508,489

The amount of unsold ore on dock at the close of the season this year we estimate at 60,000 tons, though much of this is of such grades and so scattered as to be practically unsalable. The proportion of sold and unsold stock at Lake Erie ports on the dates named has been as follows:

Date.	Sold.	Unsold.	Per cent.
December 1, 1884.....	388,135	650,000	62.6
December 1, 1885.....	918,940	130,000	12.4
December 1, 1886.....	866,472	70,000	7.2
December 1, 1887.....	858,951	740,000	48.1
December 1, 1888.....	1,681,235	167,300	9.
December 1, 1889.....	2,537,166	70,000	3.6
December 1, 1890.....	3,893,487	None.
December 1, 1891.....	3,448,489	60,000	.017

The total shipments from Lake Superior ports for 1891 were 6,490,205 tons, of which 4,939,684 tons were sent to Lake Erie ports, leaving 1,550,521 tons as the amount shipped to Chicago and other Northwestern points up to December 1. The Chicago and Northwestern shipments in 1890 were 1,271,186 tons, and in 1889, 1,288,588 tons.

The decrease in receipts at Lake Erie ports this year from 1890 has been 1,934,980 tons, or 28 per cent. The decrease in the amount on dock over 1890 is a trifle less than 10 per cent.

SHIPMENTS OF IRON ORE FROM LAKE SUPERIOR PORTS.

1891.	1890.	Gain '91.	Loss '91.
Escanaba.....	4,050,000	3,714,562	654,652
Marquette.....	1,100,000	1,307,395	207,395
Ashland.....	1,253,316	1,123,856	870,530
Gladstone.....	191,358	91,691	100,267
Two Harbors.....	885,521	826,063	59,458

Total.....6,490,205 8,063,067 159,725 1,732,587

The net decrease in Lake Superior shipments in 1891 from 1890 is 1,572,862 tons. Of course the above totals do not represent the production of the Lake Superior mines for the years stated. In the year 1890 the total production was 9,003,701 tons, or about 800,000 tons in excess of the water shipments.

"PHILADELPHIA SECURITIES" is the name of a 600-page book published by Messrs. Burk & McFetridge, of Philadelphia. It contains a list of every incorporated company having an office in that city, with a report of its financial condition, list of officers, etc.

PYRITES FOR SULPHURIC ACID.

An Important Industry That Ought To Be Developed in the South.

In 1890 the MANUFACTURERS' RECORD published a series of special articles by Mr. W. H. Adams on the importance of using the pyrites ores of the South for the manufacture of sulphuric acid to take the place of imported brimstone. There are a number of Southern concerns now engaged in this business using pyrites ores from Virginia, and last week the MANUFACTURERS' RECORD reported the organization of a \$300,000 company to erect sulphuric acid works at Blacksburg, S. C., which is a direct outcome of the discussion aroused by the articles written by Mr. Adams, as the statements made by him led to investigations which resulted in the organization of this company. The recent advance in brimstone has brought this matter still more forcibly to the front, and the Atlanta Constitution of last Sunday publishes the following on the subject:

"The brimstone trust has given the screws another twist, and the price of sulphur is \$2 higher. Within a year Sicilian brimstone has been delivered in Atlanta for \$21 per ton. Now it is worth \$36, and does not go begging at that.

"This puts our fertilizer manufacturers in an embarrassing position. Sulphuric acid is used in the manufacture of every pound of the 300,000 tons of fertilizer used in Georgia. Of the immense sum paid out for this fertilizer, a close calculation by experts shows that over \$1,000,000 went to buy brimstone. That much money left Georgia forever; it took unto itself wings, and flew to Sicily, the home of the Mafia, where the Neapolitan government has farmed out the brimstone deposits to a soulless corporation. Sicily had a world-wide monopoly of sulphur until it was found that iron pyrites contained about half sulphur and half iron, and the sulphur could be separated without much expense. The Sicilian monopoly had put the price of brimstone beyond reason, and necessity developed the manufacture of sulphur from pyrites in England.

"But the enormous demand for the king of acids called for more sulphur than the Sicilian brimstone and the Spanish and Norwegian pyrites could supply.

"Again the Sicilians are in position to dictate terms to the world, and they are doing it. The only relief in sight is to be found in the pyrites of American mines. Virginia ore is already in use to make sulphuric acid, and, now that the crisis has come, a Georgia chemist speaks out in meeting and says it is time to use Georgia ores and keep at home this million that goes to Sicily every year. That chemist is Prof. N. P. Pratt, whose ability is recognized throughout the South. He is especially familiar with the chemistry of the fertilizer business, having personally investigated the phosphate beds of Florida and South Carolina.

"Whatever advances the price of sulphur beyond reasonable limits, strikes a deadly blow at the prosperity of the country," said Professor Pratt, in speaking of this subject. "Sulphuric acid enters into and is the basis of all manufactures and all heavy chemistry. There is nothing like sulphuric acid to unlock the combinations of nature and set free the desired elements. It is called the king of acids, and the greatest of English chemists went so far as to say that the prosperity of a country is to be measured by the quantity of sulphuric acid it makes."

"Professor Pratt feels so deeply the necessity for vigorous action in this matter that he has prepared a statement for publication in the Constitution. He says:

PYRITES VERSUS BRIMSTONE.

"By an accurate computation, the manufacturers of chemicals and commercial

fertilizers in this State consume 108,930 pounds of brimstone per day. The annual consumption, therefore, reaches 19,892 tons, which at \$36, its present cash value, amounts to \$716,112. If we deduct the actual ocean freights of \$2.75 per ton, and allow \$3.50 for brokerage and land freights, we have a balance representing an actual drain from Georgia to the island of Sicily on account of this industry of \$591,787. Bear in mind also that our sulphuric acid industry is yet in its infancy.

"Even this does not show what the State pays for foreign brimstone. The home-made fertilizers, of which nine-tenths are manufactured near Atlanta, do not fill the whole demand of the State. Last year 300,000 tons of all makes were sold in Georgia, and in the manufacture of that quantity it is estimated 33,333 tons of Sicilian brimstone were used. At the present price, \$36 per ton, that quantity cost \$1,200,000. All of this but the land freight, \$100,000, has left the State. That leaves \$1,100,000 that went out of Georgia last year to buy brimstone.

"Within the last year brimstone has risen from \$19 to \$37 per ton at the coast, and this fact recalls the occasion when in England the deathblow was given to the Sicilian article as material for the manufacture of sulphuric acid. Consumption there had largely increased in the alkali works, with brimstone selling at \$28.90, when, in 1838, Messrs. Paix & Co., of Marseilles, entered into an agreement with the Neapolitan government, controlling the deposits, by which that firm secured a monopoly of all the brimstone produced in Sicily. The price immediately rose to \$67.50, when a panic ensued, which shut down most of the manufacturers of Great Britain. The following year pyrites was successfully substituted by Thomas Farmer, of London, and he was speedily followed by every manufacturer of note in the United Kingdom, until in 1889 the consumption of pyrites, by the chief alkali inspector's report, amounted to the enormous figure of 1,054,961 tons for that year alone. The price of brimstone soon fell to \$16 per ton there; but pyrites had successfully displaced it, and large deposits in Ireland had been developed. Soon these were displaced by higher grades from Norway, Spain and Portugal, and brimstone was practically driven from the English market, never to stand in competition with this ore again.

"Pyrites is a combination of sulphur and iron, chiefly occurring in nature in two different ratios of combination; this one carries in its best form about 38 per cent. of sulphur and 62 per cent. of iron. It is refractory in the furnaces, and but stubbornly yields its sulphur contents. The presence of a large percentage of copper is necessary to even attract the attention of acid makers, and in this case the per cent. of sulphur is materially lowered.

"The other form is the true bisulphide, carrying, when pure, 53 per cent. sulphur and 47 per cent. iron; this is the commercial ore. It readily yields to the chemical processes within one or two per cent. of its value; it is the only form that has successfully displaced brimstone, and is that referred to throughout these remarks.

"Several causes have conspired to raise the price of the Sicily article. Sulphuric acid is almost exclusively used in the South in the manufacture of commercial fertilizers. In our own State alone the farmers have increased the consumption of this indispensable article from 46,548 tons in 1875 to, perhaps, a little more than 300,000 tons the past season. Besides, great impetus has been given this industry recently by the enormous discoveries of phosphates in Florida, which, from an intimate knowledge of their extent and quality, I consider of the most important find of this generation. Direct information from companies now mining in Flor-

ida shows an aggregate capitalization of \$7,840,000, with a daily mining capacity of 2,000 tons, or say 600,000 a year. Besides those actually in operation there are 44 others incorporated and capitalized at \$18,670,000. South Carolina produced last year 537,140 tons of crude rock. While it is notorious that much wild speculation has raged and still is raging in Florida, and that capitalization bears no proper ratio to the first cost of the deposits in most cases, when we consider the possible output of crude rock from South Carolina and Florida together, we are astonished at the prospects. It is true, much of it will go abroad, because the world needs it and will have it, but home consumption is greatly extending, and I confidently expect to see an enormous increase in the output of our works. If anyone believes the limit has been reached in Georgia, he disregards the evidence and shuts his eyes to the open page before him. George W. Truitt, of Troup county, uses a ton to one acre, and makes his five bales of cotton, by the sworn testimony of his neighbors; one of these same neighbors uses 200 pounds, and makes his half bale, while another uses none, and is lucky if he raises a bale on five acres. An Englishman commonly uses a ton, and the returns enable him to pay \$50 an acre rent to his landlord. These facts speak for themselves, and they hold good for grain and all other crops as well.

"Now, let us see what stimulus has been given to European consumption by discoveries abroad. In 1886 the great Somme fields were discovered in France, which during the ensuing twelve months were shown to be of vast extent and importance. In 1887 300,000 tons from this source and about 350,000 tons of basic slag were marketed, as reliable statistics show, yet this flood of new raw material, instead of increasing the cost, was met by consumption which has steadily advanced demand and prices the world over. At this writing first-class rock at the coast is quoted at \$1 per ton higher than in January, 1890. Does not this evidence warrant the conclusion that sulphuric-acid manufacture in Georgia is yet in its infancy?

"The question now naturally arises, are we going to Sicily always for brimstone with which to manufacture our acids? England ships the crude rock abroad, manufactures it and returns it to undersell our home manufacturers, while there are works in Georgia by the side of which the best managed works abroad can show no better record. Then why is it so? Brimstone is only used abroad in the manufacture of chemically-pure acid. Is it not, therefore, because all the acid used in these works is made from pyrites, as is known to be the universal custom?

"But little pyrites has as yet been used in America, though the consumption is gradually increasing. With but few exceptions, and these at the coast, our Southern works are designed for the use of brimstone, and our foreign friends, unable to meet the demand, now fix their own prices for the article.

"If English companies have been able to manufacture acid from pyrites at a saving over brimstone delivered to them at \$16 per ton, why cannot we do it with brimstone at \$36 per ton in Atlanta to-day? The fact is, it is cheaper to use pyrites at what it is offered, delivered in this city from other States, than to use brimstone at its actual mining cost plus freights, allowing no profit to the Sicilian miners.

"Now let us note here what some of our countrymen are doing with pyrites. It is mined and shipped from Coos county, N. H., to Boston and New York cities, and ores from Franklin county, Mass., are railroaded for consumption to the same cities. Ores from St. Lawrence county, N. Y., are carried several hundred miles into Canada and there used, while the largest manufac-

turers of acids in America, Messrs. G. N. Nichols & Co., in New York harbor, bring theirs several hundred miles from the Albert mines in Canada. Two of our prominent Savannah companies have for years used Virginia pyrites in preference to brimstone, and all this while the latter could be delivered at their works at \$15 per ton less than its present price. I do not violate confidence when I say a Virginia manufacturer, who used pyrites from his own State, has steadily asserted his ability to deliver acid phosphate from Richmond into Atlanta at figures which would stagger our home manufacturers, but their trade is large at higher prices at home.

"Having carefully considered this question, in its various phases, for months, I now confidently assert the time has come when we should get out of the old rut, cheapen the first cost of our goods and keep our money at home. Ores of high grades and free burning qualities can and will be developed in Georgia whenever the demand is created for them. In the meantime, Virginia and other ores can be delivered here on a guarantee of 43 to 45 per cent. of sulphur contents at a price our manufacturers can well afford to consider. He who gives this question a well-directed trial will find there is no possible comparison between the cost of sulphuric acid made from pyrites and that made from brimstone, even with the latter at \$12 per ton less than the present value; and I repeat, when this is done, and a demand for ore created, mines will be opened in our own State that will still further cheapen the cost and bring on a fuller development of our native resources.

VALUE OF THE RESIDUUM.

"An important item in the manufacture of sulphuric acid from pyrites is the iron that is left. The residuum from pyrites ore carries in the neighborhood of 60 per cent. of metallic iron, which is in ready demand at all furnaces at which it may be delivered. The foreign sellers of pyrites always reserve in their contracts the right to the disposition of this residuum, selling only the sulphur in the ore. All raw ore at the furnaces is roasted before being charged. By this process the sulphur is first utilized, and the ore is roasted at the same time, thereby saving a heavy outlay for wood in the calcination operations at the iron furnace. The residuum would be worth more than raw iron ore, because part of the ordinary work, that is to say, the roasting, has already been done. I should think the residuum would be worth \$4 a ton at the furnaces. That is about the ruling price of the limonite ores after calcination."

What a Western Banker Thinks of the South.

STOCK GROWERS' NATIONAL BANK,
CHEYENNE, WYO., Dec. 9, 1891.

Editor Manufacturers' Record:

I investigated some of the great resources of the South when I was attending the Bankers' Convention recently held at New Orleans, and I will say without hesitation that the South at present offers rare and wonderful opportunities for the profitable investment of capital, especially in timber lands in Mississippi and Louisiana, where I understand that fine timber lands can be bought for two or three dollars per acre.

Manufacturing of the timber on these lands must naturally command the attention of business men in the near future.

In fact, the South is an inviting field for the investment of capital for the manufacturing of the raw material that is produced there so abundantly. And it seems that the native Southerner is ready to welcome with open arms, whoever he may be, who is willing and ready to unlock the latent resources of that great Southern land.

A. GILCHRIST, President.

New Markets for Norfolk's Trade.

NORFOLK, VA., December 12, 1891.

Editor Manufacturers' Record:

A movement is now on foot looking to the opening up of the markets of the great Northwest to our farmers and truckers here.

The magnitude of our trucking operations was touched upon lightly in my last letter to the MANUFACTURERS' RECORD. A few more figures in relation thereto may not be out of place in this connection, and will help to convey an intelligent idea as to the importance of our truck crop.

The value of our truck crop for the year 1879 was placed at \$1,751,645. In the year ending June 1, 1890, this had increased to the large sum of \$5,773,467.25. This shows an increase of more than 300 per cent. during a single decade.

During the year ending June 1, 1889, the number of packages (boxes, barrels and crates) of truck shipped North from this port reached the large total of 2,789,557. The number of acres devoted to truck in the Norfolk district was 45,375. The number of hands employed reached very nearly to 25,000. The wages paid was 75 cents per day for men, 60 cents for women and 35 cents for boys and girls.

The rapid growth of the trucking interests here and the opening up of new fields of supply from time to time has operated to create a surplus and to threaten a glut in the Northern markets. To remedy this matter our people here are at work to open up the Northwest to our surplus truck crops.

Norfolk has three chances to reach that field, viz., via the Chesapeake & Ohio Railroad, the Baltimore & Ohio and the Norfolk & Western. The first-named line is now ready for almost any amount of work in that line. As long as the exports of this port exceed the imports, just so long will there be empty cars passing westward. Our truck should fill all these empty cars, and thousands besides.

About the middle of the year 1892 we may expect the Norfolk & Western to be in shape to compete for a share of this work. The Baltimore & Ohio is very likely to secure a "deep-sea terminal" on these waters which will make that great corporation a competitor for a portion of the carrying trade from this point westward.

With three great lines of rail connecting this grand trucking center with the great consuming centers of the West, our surplus truck will find an excellent market.

The freight to New York on a barrel of potatoes is 25 cents (by rail or steamer); a barrel of spinach goes for 17 cents, kale 17 cents, a barrel of cabbage costs 18 cents, while a half-barrel box of beans or peas 12½ cents, while berries go up to New York by steamer or by rail for 1 cent per quart.

Our truckers cannot in reason expect or hope to get as low rates to Chicago as to New York or Philadelphia or Boston, but what they want is fair rates and a fair show to supply the people of Chicago and the Northwest with a few thousand carloads annually of the cheapest, sweetest and best vegetables grown in the United States.

This is an important move for Norfolk. It is an equally important one for Chicago. The Boards of Trade of both cities will be asked to take hold of the matter.

The Norfolk & Western is doing an unusually heavy business at present. There are 1,500 loaded cars in the yards of that road at the present writing. Of these 800 cars are loaded with grain and the balance with miscellaneous goods, nearly all for export.

This road jumps at once into a fine grain trade. Very little has been done in this line until this year. It looks as though the grain trade of the Norfolk & Western

Railroad was to be developed as rapidly as its coal trade. A few years ago the coal trade of the Norfolk & Western was begun, and the amount handled by that road during the past 12 months exceeds 1,250,000 tons, and the output is rapidly increasing each month.

Governor McKinney, in his oyster message to the Virginia State legislature, asserts that the oyster interests of Tidewater Virginia can be made to yield a greater revenue than the mineral portion of the State.

According to the Governor's statements, Virginia has 1,000,000 acres of oyster ground, which, if properly handled, he thinks, should yield a net return of \$35,000,000. The oyster interests of the State are to be thoroughly overhauled at the present session of the legislature.

The possibilities of the oyster culture and the oyster business is something truly wonderful. Virginia is fortunate in possessing the finest field for this work of any State in the Union. If our law-makers are equal to the occasion and will put the business in such shape as to foster and develop it, "there's millions in it," not only for individuals, but for the portion of the State bordering on the Chesapeake and its tributaries as well as for the entire State.

The Norfolk & Western will ship at least 300,000 bushels of wheat to Europe during the present week.

Developing Coal at Weatherford, Texas.

WEATHERFORD, TEXAS, Dec. 11, 1891.
Editor *Manufacturers' Record*:

In answer to your favor of 5th inst., I enclose herewith copy of analysis of coal taken from a prospecting shaft on our property. We have not had any analyses made of the coal which we are taking out of our present working shaft, which we think is really better than the coal from which this analysis was made. The depth of the vein in our present shaft is 143 feet, and is 19 to 24 inches thick. It is overlaid with a blue carbonaceous shale, and is underlaid with 6 to 8 inches of fire-clay and lies nearly horizontal. Our mine is perfectly dry and free from gas or fire-damp.

As regards the quality of the coal, we think it is equal to the best bituminous coals for manufacturing purposes, and can be coked for working iron and smelting purposes, and that the quantity is unlimited is beyond question. The central coal fields of Texas, in which we are located, covers the greater part of 25 counties, in which it is estimated that there are 1,000 square miles that will yield 2,500,000 tons per square mile of good coal.

As I stated in my former letter, our product is being used successfully by the Gulf, Colorado & Santa Fe and the Weatherford, Mineral Wells & Northwestern Railways in their engines, and is also giving satisfaction as a domestic coal.

TEXAS COAL & FUEL CO.,

L. M. FOUTS, President.

"The following is the analysis of the 115-foot shaft:

Moisture.....	3.38
Volatile matter.....	36.61
Fixed carbon.....	48.59
Ash.....	11.45

100.00

"This sample cokes well."

A GREAT impetus has been given to cane-growing and sugar production in Southern Florida by the passage of the bounty act. The largest plantation devoted to sugar-cane is the St. Cloud, near Kissimmee, 1,000 acres of which are covered with a fine stand. This was planted five years ago and has renewed itself ever since, as it probably will for several additional years before a new planting will be necessary. It is expected that the average yield this season will be 4,000 pounds of sugar to the acre, that the government's 2 per cent. bounty will pay the entire cost of production and that whatever price may be obtained for the sugar and molasses will be clear profit.

Middlesborough Notes.

[Special Cor. MANUFACTURERS' RECORD.]

MIDDLESBOROUGH, KY., Dec. 11, 1891.

A large, handsome brick building is nearing completion at the corner of Exeter avenue and 2nd street; it is being erected by J. E. West and associates and is one of the handsomest structures in the city. The ground floor is to be devoted to stores and business offices; the upper portion, being built for apartments, will be rented to families.

At a meeting of the board of directors of the American Association, Limited, held in London on November 27th, Mr. J. H. Bartlett was elected to the position of manager in the United States, with headquarters in Middlesborough. Mr. A. A. Arthur, as previously announced, was made local director and agent of the association. The resignations of John B. Cary, cashier, and E. E. Malcolm, assistant manager, have not been accepted, but the complement of the staff will not be decided upon or arranged until the arrival of Mr. Bartlett in this city during the coming week. This arrangement puts Mr. Bartlett in charge of the American Association's affairs on this side of the water, but he will be advised on all matters of importance by Mr. A. A. Arthur, who resigned the office of general manager. Though an Englishman by birth, Mr. Bartlett has frequently visited this country and is said to be well posted in American ways and methods. He is a member of the Civil and Mechanical Institute of Engineers of Great Britain.

Mr. Edward F. Powers, president of the Middlesborough Town Lands Co., expects to leave in a very few days for England, where it is thought he will remain until the early spring.

I understand that work on the South Boston Iron Works is to commence as rapidly as the preliminary details can be attended to. The plans are being rearranged and estimates are now being secured from leading contractors. It can be stated authoritatively that the South Boston Iron Works of Middlesborough will be erected, and that they will be put into operation with all possible haste.

It is a matter much to be regretted that the large iron furnaces and steel plant of the Watts Syndicate are again delayed, and that it will be impossible to get them started for several months to come. The financial embarrassment of J. P. Witherow, of Pittsburg, has caused all work on the steel plant to be suspended, and it cannot be resumed again until these troubles are adjusted, during the early part of next year. While the furnaces are ready to go into blast, there are many obstacles in the way to retard this happy event for considerable time to come. It appears that the water works are not in shape or condition to furnish the supply of water required; and then the Knoxville & Cumberland Gap and Middlesborough Belt Railroads are not equipped with sufficient rolling stock to keep the works supplied with coke, coal and iron ore were they to blow in at present. To overcome part of these troubles it is stated to-day that the Watts people are contemplating the erection of a large standpipe on Powell's river, and to have the water piped from that point through the Cumberland tunnel to their works in this city. This undertaking would cost in the neighborhood of \$40,000 to \$50,000, and would require some months to complete the work. Mr. Frank Watts is now in London endeavoring to have these matters adjusted, and it is hoped he will meet with success, as the key to the situation in Middlesborough to-day is the going into blast of these furnaces.

Strong efforts are being made by E. F. Powers and others to induce the directors of the American Association, Limited, to give more attention to the equipment of the Belt Line and of the Knoxville & Cum-

berland Gap Railroad. Under the present condition of affairs it will be impossible to operate any of the coal or ore mines with profit or satisfaction to the association or the lessees. The coal men claim, and with reason, that with sufficient rolling stock they could ship three times the amount of coal and coke they are now doing; they further assert that they are some seventy carloads per day behind in their orders. These assertions are not made as a reflection upon the local management, but to emphasize the requirements of the situation and to urge if possible the immediate proper relief by the American Association directors in London.

Taking the cue from an item in a late number of the MANUFACTURERS' RECORD, the Louisville Courier-Journal of this date pays the following compliment to a most deserving railroad official of this city: "In a recent number of the MANUFACTURERS' RECORD, of Baltimore, a very graceful and deserving compliment is paid Mr. L. S. Robertson, the popular and efficient division superintendent of the Louisville & Nashville Railroad Co. at Middlesborough. Mr. Robertson is not only an excellent and experienced railroad man, but he is also a diplomat of considerable skill. In the bitter fight which was waged during the early history of that city by the American Association, Limited, against the Louisville & Nashville Railroad Co. over certain rights of way and tunnel privileges which the Knoxville & Cumberland Gap Road disputed for months in and out of the courts, and which was so successfully adjusted by Mr. M. H. Smith, then first vice-president of the Louisville & Nashville, Mr. Robertson, with considerable judgment and patience, succeeded in counteracting the ill feeling and strong prejudices which existed at that time against the railroad company by many of the people of that section of the State, who were erroneously under the impression that the Louisville & Nashville Railroad Co. was inimical to its development."

O. O. HALL.

THE Mississippi River & Ocean Navigation Co. was chartered in Illinois March 28, 1880, to construct and operate steamships under the Lucas patent for the navigation of that great stream and its tributaries, also the Gulf of Mexico and the broad Atlantic. The Lucas patents covered sundry devices that would enter into the construction of a steamship with two hulls, with an adjustable keel in the space between them. This keel, by mechanical appliances, could be raised in shallow water and be dropped when the ship encountered rough seas and tempestuous winds. The invention seems to have some of the characteristics of a catamaran and of a centre-board sailing craft. A company was organized under the charter to build a steel steamship after the designs of the inventor. There was some delay in carrying out the intention, presumably because of the financial depression and the difficulty of raising funds for any new enterprise. It is said that those who have faith in these patents are about to reorganize the company and to build the first of what they hope will become a line of steamers. The authorized capital stock is \$5,000,000, in shares of \$10 each. The taking idea in connection with this scheme is that such a line of steamers would in time make St. Louis and other river cities commercial ports carrying on a direct trade with Mexican, Central American and other seaports on the Gulf and the Atlantic coasts.

GEN. JOHN T. WILDER, in speaking of the developments that his company is making at Chicamauga and in the coal fields on Lookout mountain, says that the report of Dr. Hyland, an English expert, shows that this coal is better for coking than the Durham coal of England. His company is building a 20-mile railroad to the mines, and will construct 300 ovens to make coke for furnaces in Alabama and Tennessee.

World's Fair Notes.

A meeting of the citizens of Baltimore was held in the City Hall last Monday evening, in response to a call issued by Mayor Latrobe. The large audience-room was tastefully draped with the flags of all nations. Mayor Latrobe presided and made an appropriate address. Speeches were made by the two Maryland commissioners and by several prominent citizens. A board of promotion was appointed, and a resolution was unanimously adopted instructing the executive committee of the board to formulate a measure for presentation to the general assembly for an appropriation of not less than \$100,000 for a Maryland exhibit.

A proposition has been made for New York to buy the old Van Rensselaer mansion and transport it to Chicago, that it may be used there as the New York headquarters. This ancient residence, erected in 1765, is one of the finest examples of colonial architecture in the country. It can be taken to pieces, carried to Chicago and rebuilt there at less cost than an inferior structure could be erected.

Enoch Morgan, Sons & Co., of New York, have forwarded their subscription for \$10,000 to the World's Fair directory, with a letter stating that this was the sum they originally pledged to New York's subscription, and adding: "Such a national undertaking deserves the unhesitating support of every section of the country, wherever the representative government may elect to have it."

The Board of Trade of New York city has expressed itself in favor of an appropriation of \$1,000,000 by that State, and has asked the State Board of Trade to advocate that sum for New York's exhibit.

Georgia editors, at their recent convention at Macon, enthusiastically resolved "Georgia must be represented at the World's Fair," and then adopted practical means to give effect to their resolution. It was determined to raise \$100,000 for exposition purposes. An executive committee consisting of one member from every congressional district was appointed, to which will be added a member from every town of 3,000 or more inhabitants. A plan for county organizations was also adopted. The committee will meet this week and set the machinery for collecting subscriptions in operation.

The State Board of Agriculture of North Carolina has formally voted to make an exhibit in co-operation with the World's Fair commission of that State.

At a meeting of the directors of the Southern Lumber Manufacturers' Association, held at New Orleans the 3d inst., it was recommended that a voluntary assessment of \$5 per million feet be levied on the output of 1891, and that the secretary be authorized to advertise for plans and specifications from architects for the vestibule work on the Forestry Building at Chicago. The annual meeting of this association will be held on February 17 at New Orleans, when the result of this recommendation will be reported.

From all parts of the South come reports of preliminary work. In every case it should be followed by vigorous, unceasing action, for there is no time to be lost.

Arkansas has formally organized a World's Fair Association with a capital of \$100,000. The money for this capital stock will be obtained by individual subscriptions. In six counties stock has been taken to the amount of \$10,171.50, and there is no question in that State but that the total will be promptly subscribed. The officers of this company are: President, Major John D. Adams; vice-president, Col. J. H. Clendenning; treasurer, Col. John G. Fletcher; secretary, George R. Brown. Throughout the State public enthusiasm has been aroused, and Arkansas expects to make a splendid exhibit.

Extensions of the Plant System

THE PLANT INVESTMENT CO.
NEW YORK, December 11, 1891.
Editor Manufacturers' Record:

We will probably build the Alabama Midland Railroad south from Luverne, but have not yet determined when the work will be commenced.

The work of laying the track on the extension of the South Florida Railroad north from Pemberton is progressing, and rail is on hand or en route to lay track as far north as Inverness, where connection will be made with the S. S. O. & G. Ry. The further extension of the line to connect with Savannah, Florida & Western Railway is under consideration and will probably be commenced within a short time.

The work on the Charleston & Savannah Railway at Charleston, to make connection with the various phosphate works on Ashley river, is under progress and will probably be completed within the next 30 or 60 days, or in time for the accommodation of the fertilizer business the coming season.

H. B. PLANT, Pres.

Tin-Mining in Virginia.

Some months ago the MANUFACTURERS' RECORD stated that about \$50,000 worth of machinery was being put to work in Rockbridge county, Va., in developing a tin-ore property which had been secured by Boston capitalists. From time to time we have referred briefly to the work in progress there, and the last issue of the Rockbridge County News gives some particulars from which we gather the following statements:

"There is one industry in Rockbridge that has never been boomed. Carried on in the recesses of the Blue Ridge mountains, those in charge of it, whilst expending much money and energy, have avoided instead of seeking publicity. It is gratifying to be able to note that though general stagnation is reported from all other quarters, the news from this grows more reassuring and more hopeful. It is the tin industry on Irish creek.

"In April, 1890, the Boston Tin Mining Co. leased the Cash tin property of 160 acres on Irish creek for two years at a minimum royalty of \$6,000 per annum, and were allowed the option of buying the property at the expiration of the two years for \$200,000.

"Since the date of the lease this company has had a force of men quietly but steadily employed opening up the tin mines on the property. They have run into the mountain a tunnel 200 feet, and from this several side tunnels from 50 to 100 feet. A 100-foot cut has also been made. They have found themselves always working through tin ore of sufficient value to be reduced with profit. Last summer they erected on their property reduction works that cost over \$50,000, and since that they have had at work a ponderous crusher that will crush 200 tons per day. It is an open secret that the Boston Tin Mining Co. will take advantage of the right they possess and buy in the property before the expiration of their lease in 1892. They are preparing now to increase their force at the mines, so as to keep the crusher steadily at work.

"The average of tin in the Rockbridge ore is variously estimated. The most conservative put it at 2 per cent.; some as high as 20. Specimens have been analyzed which run as high as 60 per cent. If the minimum is the true estimate, and the ore exists in large deposits, the value of the Rockbridge tin mines will be beyond calculation. That it does exist here in quantity is the opinion of experts, and that such is the case has been demonstrated by all the work of development hitherto undertaken. This Boston company evidently has that opinion, and it has not been acting blindly. What is really the fact remains to be developed by future workings. The deposits are said to

very much resemble those in the Australian mines. An experienced tin man, who has had large experience in the Australian mines, does not hesitate to declare, after thorough investigation, that he regards the Rockbridge mines as the most valuable in the world.

"The section of the Irish creek country in which there are traces of tin and indications of mines of value is six miles long by one-third of a mile wide. The Cash property takes but one-third of one mile of the six."

Baltimore's Investments in Southern Railroads.

Mr. John Gill, president of the Mercantile Trust & Deposit Co., has recently returned from a trip through several of the South Atlantic States. To a representative of the MANUFACTURERS' RECORD he said that Baltimore capitalists had every reason to be gratified with the results of their investments in Southern development, which they had materially aided by placing immense sums in bonds issued for railroad construction. For years they have been holders of large blocks of the Atlantic Coast Line, the Richmond & Danville and the Seaboard Air Line securities, and more recently they have invested about \$2,000,000 in the bonds of the Savannah, Americus & Montgomery Railroad; the same amount in the Georgia, Carolina & Southern; \$1,000,000 in the Roanoke & Southern, and about \$500,000 in the South Bound Railroad, which will run between Savannah and Columbia. "All these are first-class securities," said Mr. Gill, "and as the country traversed by these railroads is steadily developing, their securities increase in intrinsic value."

IN noticing the public dedication with imposing ceremony of the historical monument erected by the Pennsylvania Railroad management to mark the site of the first piece of track laid between New York and Philadelphia, the London (Eng.) City Leader pays the following graceful compliment to that railroad company: "The celebration of any eventful incident of the railroad movement in the United States could not be more fitly observed than by the Pennsylvania Co., which has carried its system to the highest standard of efficiency that has ever been reached in any country in the world. When the complete history of the railways of the United States comes to be adequately written, it will contain no more illustrious names than those of the presidents, vice-presidents, engineers and other officers of the Pennsylvania Co. The railway system of the United States is not yet, in respect to any of its lines, perfect, but it is being perfected in almost every desirable particular, and especially in the essential particulars of safety, comfort and speed."

YEARS ago the Kanawha valley of West Virginia was a great salt-making region, and about 60 salt furnaces were in operation. The development of salt-making in Michigan, owing largely to the low cost of wood as fuel, made the business in West Virginia unprofitable and most of the works were abandoned. The development of coal-mining and the low cost of coal in the latter State now affords a chance for reducing the fuel bill, and so the prospects look encouraging for a revival of the salt industry in the Kanawha valley. The production of that district now is very small, but one of the largest of the old works is, it is reported, to be put in order and started up again.

A GLASS factory, to employ not less than 200 men, is to be built at Kanawha City, W. Va., by New York people. The capital stock of the company is \$50,000. Thus the good work of utilizing the natural resources of the South in the creation of wealth goes steadily on.

A Louisiana Lumber Plant.

A saw-mill plant will soon be completed in Louisiana that has few rivals in the country. The corporation that has engaged in this enterprise is the Lutch-Moore Cypress Lumber Co., officered as follows: President, H. J. Lutch; vice-president, G. Biddell Moore; treasurer, Jas. Diebert; secretary and manager, D. H. McEwen; John Kustaborder, chief engineer; A. E. Lindsey, foreman of mills. Mr. Lutch is an experienced Pennsylvania lumberman, who, 14 years ago, commenced operations at Orange, Texas, where, in 1890, he manufactured and shipped 115,000,000 feet of lumber. This new enterprise is worthy of his past achievements.

This company has bought 35,000 acres of swamp land, on which is a heavy growth of red cypress. This property lies in a triangle formed by the parishes of Ascension, St. James and Tammany, and the shore of Lake Ponchartrain. The mill property lies behind a broad, high levee of the Mississippi, 42 miles from New Orleans, and adjoining the tracks of the Mississippi Valley Railroad. The timber land commences at the head of Blind river, which is simply the reservoir of innumerable sloughs, bayous and creeks. Between the mill and the river, seven miles apart, the company has built a railroad, laid with steel rails of 30 pounds weight, with a complete equipment of locomotives and cars.

The New Orleans New Delta gives the following account of this enterprise:

"The lumber after being felled is taken from the swamps by steam-power, towed into Blind river by the same force, loaded on cars by steam and hauled over the railway into the yards. Between the main mill and the levee is an artificial reservoir 9 feet in depth and 400x300 feet in dimensions, capable of holding a million feet of logs at one time. Beside this reservoir the timber is unloaded by steam-power and thereby floated to the jack-slip and submerged. Sinkers are taken at the point, unloaded and taken to the jack-slip under the same process.

"When prepared for the attention of the sawyer they are pulled to the mill, transferred over the log deck, loaded on the carriage, run to the edger and made into lumber, all by the operation of mechanism by steam and never touched by human hands. By the same motive power, after edging, the lumber is carried to the trimmer, whence it is cut in mathematical correctness to the required length. Another remarkable innovation is that all slab, refuse and defective timber seems to be spirited away from the edger immediately behind the rolls and disposed of, leaving the entire rear of the mill free from obstruction and exclusively for the manipulation of lumber, thereby avoiding blockades and facilitating operations.

"The main building is 54 feet wide and 278 feet in length. The additions are: Boiler-house, 64x50 feet, equipped with 600 horse-power boilers; engine-room, 31x30 feet; shingle mill, 74x50 feet; file-room, 30x32 feet; two dry-kilns, 30x31 feet each, with a drying capacity of 75,000 feet of lumber each; machine shops, 30x50 feet, for the purpose of constructing and repairs of all machinery utilized.

"The capacity of the plant will be as follows per diem: Saw mill 150,000 feet of lumber, 10,000 pickets and 25,000 laths; shingles, 250,000. A planing mill now under construction, 80x125 feet in dimensions, will have a capacity of 75,000 per day.

"The siding and roofs of each building are constructed of corrugated iron, white-washed inside, while all the woodwork has been subjected to a fire-proof process by having been immersed and thoroughly saturated with alum, salt and lime.

"While the originators of this marvelous

plant have given all attention to the mechanical details, they have given profound thought to their employees. Sufficient land to the north of the Valley track has been laid off, and, as if by magic, a miniature city has been created.

"Already a dozen cottages, single and two-story, have been erected, a depot is under headway, and the rasp of the circular saw and the escaping steam of a half dozen mills are heard getting out lumber for the construction of upwards of 75 houses for the use of employees, their families and depots of supplies. Streets will be graded and ditched, all sanitary precautions adopted, a church, schoolhouse and social hall built at the expense of the company, while such conveniences as electric lights and water works will be in order from the day operations are actively begun, which will be about January 1, when Lutch will embrace a possible 500 inhabitants, all earning liberal wages in developing this most elaborate lumber industry."

MESSRS. L. PRANG & Co., of Boston, have issued this season an unusually attractive line of holiday publications, and the peculiar American character of their designs is more striking than ever. The line comprises, besides the usual Christmas and New Year cards, a great variety of dainty art novelties; many different calendars, large and small, for the desk, the table, the mantel, the wall and the pocket; a number of fine art pictures on paper and satin, and a full assortment of art books and booklets. A prominent feature in many of the publications is the artistic application of hand-painting. Outside the many pretty booklets there are a few dainty little trifles which call for special attention. Among them we mention the following: "A Tennis Set," by Lucie A. Harlow, gives, in a humorous way, the outcome of a charming flirtation carried on while playing at tennis, the technical expressions of the game supplying the catchwords. It is charmingly illustrated by F. Schuyler Matthews. The cover shows a realistic tennis net. The same artist has illustrated another humorous poem by the same author, called "A Day's Fishing," relating the adventures of a fishing trip. It is a shape-book, and is fastened in a cover of realistic sportsman's fishing-basket. Among other shape-books are: "Christmas Salad," after Sydney Smith, with illustrations by Lizzie K. Harlow, describing the ingredients of an excellent salad, fastened in a cover of realistic lettuce-leaf; "The Old Farm Gate," by Lurabel Harlow, with illustrations in color and monochrome by Louis K. Harlow, fastened in a cover in shape of an old farm-gate, and "Bonnet and Hats," portrayed from youth to age, by Mrs. Mary H. Huntington, with illustrations by Helen A. Goodwin. The well-known liberal religious poem, "No Sect in Heaven," has been fittingly illustrated by F. Schuyler Matthews, who has also artistically treated a book by Deacon Farrar, called "Places That Our Lord Loved." It contains illustrations in color and pen drawings of the best known spots in Palestine, and is enriched with an excellent portrait of the author.

THE Cumberland Lands, Limited, an English company which purchased last year a large body of mineral, timber and farming lands in Tennessee, including the old Cumberland iron works property of ante bellum fame, has sold a town-site of 3,000 acres to another company, which will build up the town of Carlisle, previously mentioned in the MANUFACTURERS' RECORD. Negotiations are pending with the Louisville & Nashville and the Ohio Valley Co. to secure the construction of railroads through this town-site. At the annual meeting of the stockholders of the Cumberland Lands, Limited, in London recently, a very flattering report of the prospects of this company, and also of the new town of Carlisle, was presented.

PROGRESSIVE B. & O.

A Yankee View of Its Enterprise and Spirited Management.

The United States Investor, of Boston, Mass., in a recent complimentary description of the resources of Baltimore, says, among other things:

"The present magnificent management of the B. & O. has placed it among the very best railways of the world, the most liberal, the most public-spirited, the most accommodating to its patrons, as well as the best paying to its stockholders. Baltimore shares its prosperity in a most tangible manner, and as the company enlarges its usefulness as it extends its lines, entering fresh fields and making new connections, this city will profit directly and immediately.

"A new and most enterprising departure was made by the B. & O. a few years ago in the establishment of an 'immigration department' for the purpose of furnishing knowledge to the public regarding the country adjacent to its line, and inducing manufacturers and home seekers to locate on its road. The greatest difficulty in introducing this feature was in securing the right man to preside at its head, but this was happily overcome by the selection of that Western Hustler (with a big, big H), Mr. M. V. Richards, formerly of the Northern Pacific. Any information desired, much or little, about the country through which the B. & O. runs can be obtained by addressing Mr. Richards at Baltimore.

"Among recent city and suburban improvements is the cable passenger car line running from the northwestern to the southeastern parts of the city, costing \$2,000,000, and the building of the 'belt line,' estimated to cost, when completed, \$7,000,000. Now the B. & O. Railroad is obliged to use barges on which to transport its trains from the North over the Patapsco river to the city. This belt line (which has passed into the hands of the B. & O. since the charter was granted) begins at Camden Station, enters a tunnel and reaches Bay View by a continuous route, thereby making an all-rail route over the B. & O. from the North to the South and West, and causing a saving of about half an hour's time between Washington and Northern points."

The Effect of Electricity Upon Plants.

Scientists in Europe and in some parts of the United States have been investigating the effects of electricity upon plant growth, and such results have already been obtained as to justify the expectation that this element may hereafter enter largely into successful agriculture and horticulture. Among those in this country who have engaged in this interesting investigation are Professor Warner, of the Massachusetts Agriculture College at Amherst, and the scientists connected with the agricultural station of Cornell University. The latter have recently published a bulletin declaring that experiments show that the electric light can be profitably used in the growing of plants. The Boston Daily Journal states that Professor Warner will soon publish a report of his investigations, and says:

"He has conducted them with great care and thoroughness, and few persons outside the college staff have been aware that experiments were going on. It is understood that important experiments have also been made at the college with electric currents, with the end in view of verifying the experiments of foreign scientists which go to show that the action of electric currents upon plants and vegetables seems to consist in the active dissolution of the organic principles existing in the soil, which are thereby brought within the reach of the roots, thus causing a more rapid growth in a shorter period."

The same paper furnishes an interesting

statement of the private experiments of Mr. W. W. Rawson, an extensive market gardener at Arlington, in that State, who had his attention drawn to the subject by accident:

"In the fall of 1889 it so happened that an electric light was erected by the town of Arlington for street-lighting purposes at a point in close proximity to one side of his residence. On that side of his house were a number of flower beds which never thrived until the rays of the electric light began to fall upon them. The plants soon began to show an unusual change. Finally they exhibited such a lively and increased growth that they could not fail to attract attention, and no reason could be assigned for the phenomenon but the effect of the electric light. Determined to push the experiment further, Mr. Rawson introduced lights into his extensive hothouses, devoted to the winter raising mainly of cucumbers and lettuce. The marked effect on his crop became at once very manifest, and the experiment was seemingly so successful during the winter of 1889 and 1890 that he fully demonstrated to his own satisfaction that he could raise a larger crop of lettuce or cucumbers of better quality in a shorter time than he could before; in fact, he convinced himself that the electric light enabled him to increase his profits 25 per cent. over what they had been before. Last winter he was disappointed in obtaining electric power, and could not make further investigation. Meanwhile he corresponded with scientists at home and abroad and imparted to them the results he had obtained. He hopes this winter to resume his experiments on a large scale, and is making preparations to that end. He has experimented both with arc lights and incandescents, and has found that the former are more efficient."

Everyone has noticed that great numbers of insects are found dead underneath street electric lights, and the statement has been made that in consequence of this wholesale destruction there has been a marked decrease in the number of tobacco worms in fields adjoining cities in which electric lights have been introduced. If this be true, and if the deductions from the experiments above referred to are correct, then electricity may become one of the great factors of future agriculture, both as a stimulant to plant growth and as a defense against all destructive insects.

New Uses for the Scrub Palm.

Everybody who has been in Florida, and especially on the flat lands along the St. John's river, has learned that the scrub palmetto, a stunted palm growth, has been a poor, despised thing ever since white men trod Florida soil. It has been looked upon as worthless and cumbersome to the land, and those who have ploughed it up and made every effort to kill it out have considered it a curse. But it is now more than likely that it will be looked upon as an article of value to the owners of the land where it grows. Its berries have been found to contain rare medicinal qualities; the root is said to contain a large percentage of tannin, and some works have been started to convert the leaves into a fibre. A factory has been put up at Jacksonville to work up these leaves into fibre which, it is claimed, will make the best of rope and matting, and is used for making hats, mattresses and upholstery.—Florida Correspondent New York Tribune.

THE South Carolina legislature has been asked for a charter for the Norfolk, Wilmington & Charleston Railroad. This company has been acting under a North Carolina charter, and now needs another to further its plans. It is reported that this road is to be built from Norfolk to Kinston, N. C., from which place the main division will continue down the coast to Charleston, while another will be built to Camden and Columbia.

ENTHUSED WITH LLANO.

J. S. Macnamara's Views on the Great Mineral Region.

He States That the Iron Deposits Are Inexhaustible—Developing the Mines—Silver and Gold Properties.

[San Antonio Express.]

"This city will have direct railroad communications with Llano within twelve months, and if the line is not constructed by the San Antonio & Aransas Pass Co., it will be put through by other interests," was the assertion made to a reporter for the Express yesterday by J. S. Macnamara, receiver of the Aransas Pass Road. He has just returned from a ten days' visit to Llano, where, in company with Col. Richard Woolley, Jr., he inspected the rich and extensive mineral deposits of that section, and to say that he is enthused with what he saw would be expressing it mildly. Strange as the assertion may seem, he is the first person in any way connected with the San Antonio & Aransas Pass Road in an official capacity who has ever visited the region, although an extension of that line to the mineral region has long been in contemplation. When asked to give his views as to the outlook and wealth of Llano and Mason counties by a reporter for the Express yesterday, Mr. Macnamara continued:

"I was simply astonished at what I saw. I cannot begin to tell of the richness of that region. There are inexhaustible quantities of iron and other minerals to be seen there. The Wakefield Syndicate, of Milwaukee, Wis., is engaged in prospecting on their property, and are enthusiastic over the result thus far obtained. The work is carried on under directions of Captain Wood, a mining expert of good reputation, he being instrumental in developing to a great extent the famous iron region of Lake Superior. He told me that in all his traveling experience he has never seen anything equal to the iron ore of Llano, the latter being almost chemically pure. The Wakefield Syndicate is the owner of 18,000 acres of land, principally iron land, though there are some manganese properties on it. Captain Wood, in his prospecting tour, found a solid vein of iron four feet wide and 54 feet deep, which can be traced across the property for miles.

"The Llano Furnace & Improvement Co. also owns valuable iron properties in that region, including Iron mountain, which is said to be the largest body of pure iron in the country. This company has full 50,000 tons of ore in the dump, and is now waiting for the construction of a railroad into Llano, when they can get in their heavy furnace machinery and begin active operations.

"I went with Colonel Woolley to his gold and silver mine situated upon Beaver creek. The location of this property is one of the most beautiful that can be imagined, lying as it does in the mountains, with two streams of pure water in plain view. There are half a dozen men at work putting down another diamond-drill prospecting hole on the property, a depth of 95 feet having been reached when I left. An ounce of wasting from the hole were reduced in crucibles and two buttons of silver and gold were obtained. Mr. Gage, who is superintending the prospecting work, says that he firmly believes that he has absolutely the best mine on the continent located, not even excepting the famous Comstock lode. A core of the diamond-drill ore was shown Captain Wood in my presence, and after giving it a critical examination as a mining expert, he stated that gold and silver existed in it in rich quantities, and that the core indicated having come from precisely the same kind

of stratum as that in which was found rich gold deposits in a celebrated Utah mine. From the Beaver creek property we proceeded to what is known as the Woolley, Conover & Gage. The outcrop of this property assays 50 per cent. copper and about 25 per cent. gold and silver. The ore of the Beaver creek mine is refractory. The present prospecting holes are being put down with a view to locating the fissure vein, which is always found between granite walls."

Mr. Macnamara stated that during his absence he met General Superintendent Lee, of the Austin & Northwestern, and that he was informed by that official that work on the extension would be commenced in a few days and pushed rapidly to completion, the line being under contract to be completed by April 1.

The Llano Road.

Advices from Llano show that work is about to begin on the Austin & Northwestern Road at Fairland. The beginning at this work means that the enterprise will be pushed through in shortest possible time. The day cannot come too soon. As time passes, the wonderful resources of Llano county become more apparent, and it is to Austin's honor that she will be first in opening the way to this magnificent country. Mr. Huntington has pledged himself to the building of this road, and this, too, at a time when he has expressed himself as determined to do no more railroad building in Texas, under present circumstances, except what was absolutely necessary. Mr. Huntington is too shrewd a man not to see the advantages of a road connecting the best mineral lands of the State with the city affording the best facilities for manufacturing. This road is one of the first fruits of the Austin dam, and it is a prize of which the city will be proud, and which will benefit not only Austin, but all Texas. The dam will yet draw around it other interests—East Texas timber and fruit, South Texas cotton, North Texas wheat, and will be the seat of manufacturing industries, and will enable the State to learn the important problem of living at home. The work is just beginning and it is impossible to estimate the end of it.—Austin Statesman.

THE planters of Decatur and other counties of Southern Georgia have found that they can raise tobacco of fine quality of the Cuban cigar-leaf variety, and are preparing to add that to their usual crops. Recently Captain Snow, of High Point, N. C., has journeyed through that district, and has taught the farmers how to double their production with the same labor and fertilizers by using his method and his patent barn. The editor of the Bainbridge Globe says that next season at least 5,000 acres will be given to tobacco in that county. A correspondent of the Atlanta Journal, who accompanied Captain Snow, states that their reception everywhere was an ovation; that at one place the entire population met them on the borders of the town with a brass band and escorted them to the hotel. It is his opinion that "cotton and penders are no longer in it" in that section.

AMONG the many good things which Christmas brings are the beautiful holiday cards issued by Messrs. Raphael Tuck & Sons, of London and New York. They furnish many hours of pleasure to those who love to examine the artistic work of this house as illustrated in cards and booklets of almost endless variety. There are cards for the old people and cards for the young people. They cover almost every subject that can be used by an artist for such work, and include flowers of many kinds, angels, birds, dogs, and, in short, as said of them by the great preacher Spurgeon, "all things in heaven above, and the earth beneath, and in the waters under the earth."

TRADE NOTES.

CORDESMAN, MEYER & Co., Cincinnati, Ohio, manufacturers of woodworking machinery, have lately moved to their new plant, Nos. 41, 43 and 45 Central avenue. The building is a substantial brick one with five stories, and completely equipped with new machinery of the latest designs. This firm have had a very large trade during 1891, and report prospects bright for the coming year.

ALEX. D. CUNNY, Cincinnati, Ohio, the pioneer pattern-maker of Cincinnati, has lately moved in new quarters at No. 101 and 103 E. Second street. He has more room and better facilities for turning out his work. He now employs a number of workmen, and has orders booked which will keep his works busy for the next three months. The trade of Mr. Cunny extends all over Ohio, Indiana and some of the Southern States.

FOR some six or seven years the Sulzer & Vogt Machine Co., of Louisville, Ky., has been manufacturing ice and refrigerating machines, and during that time has built a large number that are giving great satisfaction. Admirably located in Louisville, one of the great iron markets of the country, having a capital of \$500,000, with a large foundry and machine shop fully equipped, this company is in a position to build its own engines and boilers and to construct and put into operation a complete ice or refrigerating plant. It has just issued a very handsome catalogue devoted to illustrating and describing in detail its ice machines. The growth of this company's business serves to illustrate the fact that the South is rapidly learning to manufacture its own machinery, and that it is fully able to produce the highest grade of finished product as well as the lower grades. Southern investors who contemplate the establishment of ice factories will find the catalogue of this company, which will be sent on application, of much interest and value.

THERE are not many manufacturing concerns in the country whose business covers such a diversity of interests as to necessitate the publication of eight different catalogues, every one being devoted to a different line of work, and yet this is what the C. W. Hunt Co., of 45 Broadway, New York, has done. These eight catalogues are as attractive in appearance as the printer's art can make them, not in fancy style of type or in colors, but severely plain. They cover "Cable Railways for Carrying Merchandise," "Engines and Boilers," "Wire Rope, Blocks, Crane Chain," "Manilla Rope for Transmission and Hoisting," "The Hunt Conveyor for Coaling Locomotives, for Boiler-Rooms, for Gas Works, Coal-Yards, Shipping Docks and Manufactories," "Industrial Railways, Locomotives, Cars, etc.," "Coal-Handling Machinery (smaller)," and "Coal-Handling Machinery (larger)." Elaborate cuts of dozens of great works built by this company for handling coal, iron ore, salt, etc., on piers and docks are given, as well as cuts showing the whole range of work represented by these catalogues. The C. W. Hunt Co. does not design its large handling machinery in advance of orders and then make the conditions fit the machinery, but it designs each plant to fit the conditions, thus insuring the highest class of work and the most satisfactory results in operation. There is a wide field for the various lines of work of this company in the South in phosphate-mining and manufacturing enterprises, in coal and ore mining and handling for shipment, in large manufacturing establishments whose business justifies the most improved labor-saving devices, and in many other interests. These catalogues are well worth a careful study.



The COLLIAU PATENT

Cupola Furnace.

Adapted to all Foundries,
The Most Economical,
The Lowest in Price.

MANUFACTURED EXCLUSIVELY BY
BYRAM & CO.
DETROIT, MICH.

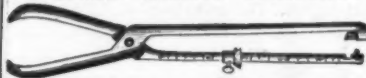
STARRETT'S FINE TOOLS



Skilled mechanics prefer them.
Live Dealers sell them. Catalogue sent for the asking.

L. S. STARRETT
ATHOL, MASS., U. S. A.

Glass Tube Cutter.



No. 1 cuts 5 inches. \$2.50
No. 2 cuts 7. \$3.00
HUNT & CONNELL, LIMITED, SCRANTON, PA.

**UNIVERSAL PLAIN
MILLING MACHINES**
EXCLUSIVE SPECIALTY
THE CINCINNATI MILLING MACHINE CO.
CINCINNATI, O.

BUILDERS WIRE & IRON WORK

of every description. I have just issued my 25th Annual Fall Catalogue of Roof Cresting, Tower Ornaments, Finials, Weather Vanes, Stable Fixtures, Stall Guards, Hay Racks, Oat Mangers, Gutters; also Window Guards, Balcony Railings, Jail Cell Work and Ornamental Brass, Wire, Iron and Bronze Work of every kind; Office and Counter Railings of Latest Designs. I ship goods all over the U. S.; and fill orders from measurements sent by mail. Catalogue free.

E. T. BARNUM, Detroit, Mich.

Bischoff Metal Ceilings, (PATENTED.)



It will pay to investigate and write for catalogue.

Estimates submitted on application.

Fred. F. Bischoff & Co.
24 W. Lake St.,
CHICAGO, - ILL.

VENTILATORS



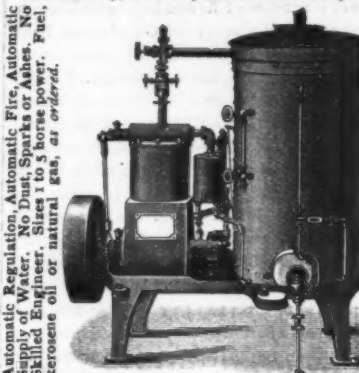
Made of galvanized iron and copper. Strong upward draft. Exhausts foul air, odors, gases, steam, etc. from mills, stores and dwellings; cures smoky chimneys. Perfectly storm-proof.
Galvanized iron and copper cupolas and gutters. Sheet metal work for buildings. Send for illustrated circular.

E. VAN NOORDEN & CO.,
383 Harrison Ave. BOSTON, Mass.

SOMETHING NEW.—How to Cover Pavilions with Leather and make Belts Endless. Write for particulars. CAMMERMEYER & CO., CLEVELAND, O.



After being on the market 6 years,
The Acme Still Leads
In Durability, Efficiency and Fuel Economy



ROCHESTER MACHINE TOOL WORKS,
Sole Builders. ROCHESTER, N. Y.
Send for Illustrated Catalogue.

The Metropolitan Automatic Injector.



The only Automatic Injector that is operated entirely without the use of any globe valves.

TO START—Open Valve K.
TO STOP—Close Valve K.

It can be used either as a lifter or non-lifter. It is adopted by the largest Engine Builders, and is for sale by the LARGEST SUPPLY HOUSES IN THE U. S.

Ask your dealer or send to us for circular and prices.
JENKINS BROS., 71 John St., New York.

"Genuine Merit Will Tell."

This truth is constantly exemplified by the

Remington Standard TYPEWRITER.

Every detail of the Remington is a tested part—every completed Machine a piece of finished mechanism.

The Remington of to-day is the realized ideal of a practical, durable and wholly satisfactory Writing Machine.

A combination of experience, energy, skill and capital has made and will keep the

Remington Standard TYPEWRITER

The best Writing Machine for every practical use to which a Typewriter may be applied.

WYCKOFF, SEAMANS & BENEDICT,

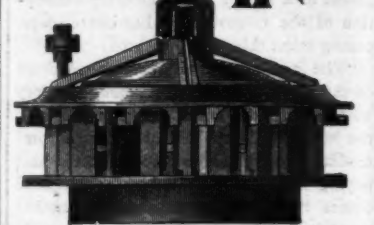
15 N. CHARLES STREET.



"IMPROVEMENT THE ORDER OF THE AGE"

For 15 years all users of typewriters have felt the necessity of their being improved. You will find in the SMITH PREMIER TYPEWRITER the latest and best. All the essential features greatly perfected and important improvements. The best inventive talent and mechanical skill have been employed to produce a machine of Greater Durability, Excellence of Design and Special Features. We claim, and inspection and trial prove it, the Most Durable in Alignment, Smooth Running and Most Silent. All type dressed in 14 seconds without setting back. Send for catalogue. THE SMITH PREMIER TYPEWRITER CO., ROCHESTER, N. Y. U. S. A.

SUCCESS Water Wheel.



This Wheel is strong and durable. Excelled all other wheels in the great trial tests. Is in use all over the nation. I also make a specialty of **HEAVY GEARING & MACHINERY**

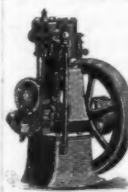
For Paper, Cotton and Grist Mills.

S. MORGAN SMITH, York, Pa.

THE BRIDESBURG MACHINE WORKS TEXTILE MACHINE MAKERS.

Worsted Machinery, Wool Machinery, Cotton Machinery, Built to Order.

HIGH GRADE WILLIAM E. MCGILL,
WORK ONLY. Bridesburg, Philada., Pa
Repairs for Bridesburg Machinery furnished promptly.



"THE SINTZ" Gas and Gasoline Engines.

STATIONARY AND MARINE
Makes its own supply of gas from gasoline, and at less expense than any other engine. No boiler, coal or fireman required. Runs with either manufactured or natural gas. Specially adapted for small boats and launches and electric light work. Circulars free. Mention this paper.

CLARK SINTZ, Mfr.
SPRINGFIELD, OHIO.

GAS and GASOLINE ENGINES STATIONARY and PORTABLE. All Sizes.

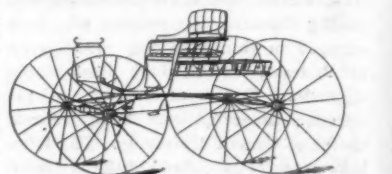


Dwarfs in Size, but
Giant in Strength.
Expense one cent an hour per horse power and requires but little attention to run them.
Every Engine
Guaranteed. Full
particulars free by mail.
Mention this paper.
VAN DUZEN
GAS & GASOLINE ENGINE CO. Cincinnati, O.

MULLER LATHES



PATENTED.
With New and Valuable Features.
MADE ONLY BY THE
BRADFORD MILL CO.
8th & Evans, CINCINNATI, O.
Photographs and Prices on application.



Our many new styles and large variety will interest every purchaser of vehicles.
Send for catalogue.



H. H. BABCOCK COMPANY, FINE CARRIAGES

Of Every Description.

WATERTOWN, N. Y.

New York City Salesrooms, 405-412 Broome Street.

STEAM JACKET
FEED WATER
BOILER AND PURIFIER

BOILS THE
FEED WATER
INCREASES
STEAMING
CAPACITY
STRONGEST
AND
MOST DURABLE

SAVES
FUEL
SAVES
BOILER
REPAIRS
THOUSANDS
IN
USE

Wm. BARAGWANATH & SON
48, 50, 52 W. DIVISION ST.
CHICAGO.

Stow Flexible Shaft

Invented and Manufactured by the
STOW MFG. CO.
Binghamton, N. Y.
Established in 1875.
For Tapping and
Reaming Stay
Bolt Holes in
BOILERS.
Portable Drilling.



What does he see?

This gentleman, after having spent a pleasant hour peering through a crack, has just seen a boy post up on the far-side of this enclosure the following sententious and soul-satisfying announcement:

SPECIAL ANNOUNCEMENT!


The Management regret to announce that the Exhibition promised for this day has been unavoidably postponed ONE WEEK, to enable them to make such repairs to the fence enclosing these grounds as will secure the privacy essential to the success of their enterprise.
P. R. O'CRISTINATOR, Supt.
All Tickets will be redeemed at the office.

Consoled by the thought that the time lost was not his—he works by the day on a job in the immediate neighborhood—the gentleman slowly removes his eye and retires, with the fixed determination of being here again next week. Not that he cares an atom to know what is to be shown next week on this spot, but simply does not intend to have his curiosity excited for nothing.

AS A MATTER OF FACT
VERY FEW ARE SATISFIED WHEN
THEIR CURIOSITY IS NOT.



G. L. Stuebner & Co.
Successors to Stuebner & Woods,
MANUFACTURERS OF
Self-Dumping Steel and Iron
Hoisting Tubs,
Side and Bottom Dumping
Cars for Coal Elevators,
Iron Wheelbarrows, Hoisting
Blocks, Bottom-dumping Tubs
for Coaling Locomotives, etc.
LONG ISLAND CITY, N. Y.
Send for circular and prices.



SOAP-DIES & PRESSES
SOAP A.W. HOUGHIN, CANDLE
MACHINERY, BROOKLYN N.Y., ESTIMATES
& CATALOGUES FREE

THE SIMMERLY DERRICK CO.
186 to 194 W. Center St.
CLEVELAND, O.

Builders of STEAM REVOLVING DERRICKS
for handling Coal, Ore, Stone, Logs, Phosphate,
etc., etc., also for Crib Building, Constructing
Canals, Excavating, etc. Also manufacturers of
Coal and Ore Buckets, Cars, Steam Pumps and
Patent Friction Clutches.



Correspondence Solicited.

SEND
FOR OUR FIFTH EDITION
HOW TO SELECT, LAY
AND PAINT A
TIN ROOF.
SENT FREE OF COST.
MERCHANT & CO.
PHILADELPHIA. CHICAGO.
NEW YORK. KANSAS CITY.

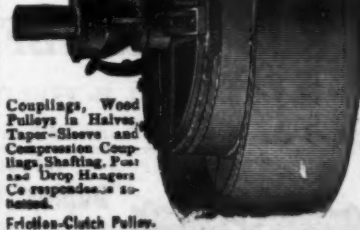
TAPER-SLEEVE PULLEY WORKS

211 W. 12TH ST.
ERIE, PA.

Manufacturers of
Taper-Sleeve Wood
Belt Pulleys, Adjustable
Dead Pulleys,
Friction Clutch Pulleys,
Friction Clutch

Couplings, Wood
Pulleys in Half,
Taper-Sleeve and
Compression Couplings,
Shafting, Foot
and Drop Hangers
on request.

Friction-Clutch Pulley.



Established 1887.
E. HARRINGTON, SON & CO
Works and Office,
N. 15 St. & Penn. Ave., Phila., Pa.
Manufacturers of a full line of



Iron Working Machinery,

Extension and Gap Lathes, Planers with Quick
Returns, Drills, etc., Hand Power Elevators with
Patent Brakes, Double Chain Screw Hoists, Over-
head Tramway with Switch, Turntable and Geared
Truck.
Gear Drilling a Specialty. Send for Estimates.
J. Q. MAYNARD, in Corbin St., New York.
C. E. KIMBALL, 24 Oliver Street, Boston, Mass.
W. BUCHNER, 122 Main St., Cincinnati, Ohio.

WEST & BRANCH,
RICHMOND, VA.
Fine Plumbing and Ventilating.
Heating by Steam or Hot Water.

Manufacturers' Agent for BOILERS, BLOWERS
and other goods in our line. Write for prices.

Cleveland
and **Hardwick**
ERIE, PA.
Manufacturers of
STEAM ENGINES
AND **BOILERS.**
PROPRIETORS OF
ERIE ENGINE WORKS.

FOR FIRST-CLASS BOILERS,
Erie and Atlas Engines,
Tanks, Stacks, Tubes,
Glas, Mills, Injectors, Shafting,
Pulleys, Belting and Fittings.
COMPLETE MILL, ENGINE AND GIN OUTFITS
At Bottom Prices.
Don't fail to write us before you buy.
Address
Geo. E. LOMBARD & CO., Augusta, Ga.

Address:
RICHMOND, INDIANA.

WE MAKE
Tubular Boilers, Six-Inch Tube
Boilers, Two-Flue Boilers,
Fire-Box Boilers, Tanks,
Smokestacks.

Send for Catalogue "A" to
FULTON BOILER WORKS.
JOHN T. CAULFIELD, Proprietor.

WEST BRANCH BOILER WORKS.



Boilers, Stacks, Tanks and Sheet Iron Works.
Steam Fittings of all kinds.
E. KEELER CO., Williamsport, Pa.
Agents for Gilbert's Universal Wood Split Pulley.

RYANT IMPROVED AUTOMATIC High-Speed Safety Engine.

Manufactured by
THE WHITMAN & BARNES MFG. CO.
Syracuse, N. Y.
Automatic governor
non-explosive
boiler, no extra in-
surance, no engi-
neer, no sparks,
ashes or smoke.
Specially designed
for those wantin
power from 2 to 5
h.p. This is the
safest, cheapest
and most reliable
power known. Fuel—kerosene oil or natural gas




THE FRONTIER MANUFACTURING CO., and as a result of two years of
satisfactory trial that their

PATENT LEVER FLUE CLEANER
is the best in the market. Why? Because the
ends are protected from breakage by the fusion;
its native flexibility entirely supercedes the old
in springs; the only cleaner with a *flexible* in
removes the refuse. Quicker and more easily
adjusted than any other; better made; does
better work; lasts longer.

FRONTIER MFG. CO., Buffalo, N. Y.

NEW SYSTEM Water Filters

For All Purposes and of Any
Desired Capacity.

J. A. BOWDEN & CO.
DETROIT, MICH.

"IDEAL"
WROUGHT IRON FENCE.
Engines, Boilers, Shafting,
Pulleys, Hangers, &c.
F. M. ARTHUR & CO., Knoxville, Tenn.


WIRE RAILING,
WIRE SCREENS, WIRE CLOTH,
And All kinds of WIRE WORK for Churches,
Institutions, etc.
H. BALDERSTON & SON,
(ESTABLISHED 1793)
122 South Calvert Street, BALTIMORE, MD.

WIRE RAILING AND ORNAMENTAL WIRE WORKS.

DUFUR & CO., 311 N. Howard St., Baltimore.
Wire Railing for Cemeteries, Lawns, Gardens,
Offices and Balconies; Window Guards, Tree
Guards, Wire Cloth, Sieves, Fenders, Cages, Sand
and Coal Screens, Iron Bedsteads, Chairs, &c.

WIRE & WIRE GOODS.

Wire Cloth, Rope, SCREENS for
Coal and Ore. Barbed and
Plain Fencing Wire, Bush
and Office Railings.



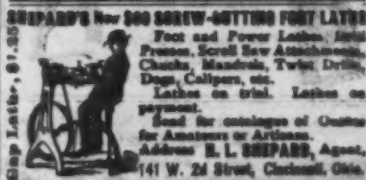
Artistic Work a Specialty.
Send for Catalogue and
Mention this Paper.

H. A. WILLIAMS MFG. CO.
SOLE MANUFACTURERS OF THE
WILLIAMS DRAPER SYPHON
STEEL AND BRASS OILERS AND LAMPS.
334 C. STREET ST. CLEVELAND, OH.
BUTLER BROS. THE NEW YORK



ILLUSTRATED CATALOGUE
FREE BY MAIL

SHARP'S New 200 SCREW-DRIVING PORT LATH
Foot and Power Lathes, Lathe
Presses, Scroll Saw Attachments,
Chucks, Mandrels, Twist Drills,
Dogs, Callipers, etc.
Lathes on trial. Lathes on
payment.
Send for catalogues of Outfits
for Amateurs or Artisans.
Address: **E. L. SHARP, Agent,**
141 W. 2d Street, Cincinnati, Ohio.



Stow Flexible Shaft Co., Limited,

Family-Stock, Callowhill and
Middle Sts., PHILA., PA.
Manufacturers of
FLEXIBLE SHAFTS,
And all kinds of Machinery to be used
with them. Portable Drilling, Tapping
Boring and Boring Machines, Also
Portable Tools for Boring Wheel
Grinding, Metal and Wood Turning,
Cotton Looming and Cleaning, &c.



Builders of
Special Machinery
for Railroads,
Bridges & Boiler
Makers, Coal-
Jars, &c.

The Hackney Power Hammer

The Measure of Excellence and Profit.

The durability of the machine and the quantity—*with quality*—of work produced, is nowadays the measure of excellence and profit, and in this respect the "Hackney" is far in the lead.

It surpasses other power hammers in durability, speed and quality of work.

Write for catalogue and prices.

THE HACKNEY HAMMER CO.
Cleveland, O.

Bradley Hammers

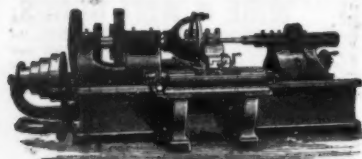
2000 IN USE.

FOR 20 YEARS these Hammers have been in the market and during all that time have been acknowledged the very best. The material we use and our method of construction are the result of ripe experience and not the jumped-at conclusions of amateurs. Send for circulars and price lists.

BRADLEY & COMPANY,
SYRACUSE, N. Y.

MINER & PECK M'FG CO.
SUCCESSORS TO BEECHER & PECK
THE PECK PATENT DROP PRESS
DROP FORGINGS BLAST FORGES
NEW HAVEN, CONN.

30 in., 42 in. and 60 in. PULLEY LATHES.



For Simultaneously Boring and Turning Pulleys.

Both Straight and Crowning Face, Cone Pulleys, Gear Blanks and a Variety of Other Work.

MANUFACTURED BY

THE HENLEY MACHINE TOOL WORKS,
Richmond, Ind., U. S. A.

Write for descriptive circulars and catalogue.

BEMENT, MILES & CO.

PHILADELPHIA, PA.

BUILDERS OF

Metal-Working Machine Tools

For Railroad Shops, Locomotive and Car Builders, Machine Shops, Steam Forges, Ship Yards, Boiler Shops, Bridge Wks.

Steam Hammers for Working Iron or Steel.

Build and Repair Your Machinery



By Using Engine Lathes, Planers, Chucking Lathes, Hand Lathes, and Machine Tools Generally

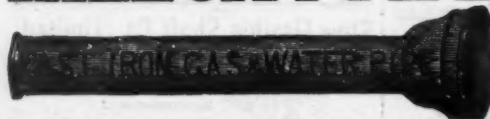
MANUFACTURED BY

LATHE & MORSE TOOL CO

WORCESTER, MASS., U. S. A.

H. E. MURPHY, Resident and General Manager. W. D. CAMPBELL, Secretary and Treasurer.

THE GLAMORGAN COMPANY, Proprietors of HILL CITY PIPE WORKS



Manufacture all kinds of Best Furnace, Coking and Mining Machinery; Boilers, Engines, Tramways and Construction Car Castings, and Tobacco Machinery, &c. Prices on application.

LYNCHBURG, VA.

CHATTANOOGA FOUNDRY & PIPE WORKS

DAVID GILES, Pres.

C. B. LEBSTER, Vice-Pres.

M. LEWELLYN, Sec. and Treas.

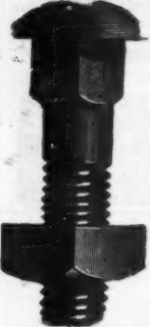
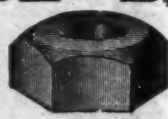
Successors to D. GILES & CO., Chattanooga, Tenn. Manufacturers of



Also
Castings & Patterns
of Every Description Made to Order.

HOOPES & TOWNSEND,

PHILADELPHIA, PA.



MACHINE & CAR BOLTS, KEYSTONE BOILER RIVETS

MADE IN SOLID DIES.

COLD PUNCHED, CHAMFERED, TRIMMED AND DRILLED SQUARE AND HEXAGON NUTS.

BRIDGE, SHIP

WASHERS,

Tank and Coopers'

Split and Single

RIVETS.

KEYS.

THE HOOPES & TOWNSEND CO., WILMINGTON, DEL.

LINK-BELT ELEVATING & CONVEYING MACHINERY

HANDLES

ANY MATERIAL IN BULK

OR PACKAGE

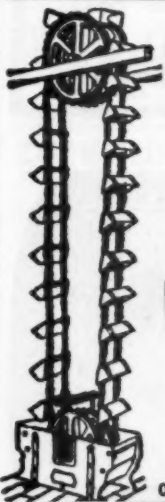
Send for Estimates and Reduced Price List of

EWART DETACHABLE LINK-BELTING,

THE LINK-BELT ENGINEERING CO.,

NICETOWN, PHILADELPHIA,

49 DEY ST., NEW YORK.



CHAIN BELTING

OF VARIOUS KINDS.

Malleable, Steel, Wrought & Special.

SEND FOR

Reduced Price List.

The JEFFREY MFG. CO.

121 E. FIRST AVENUE, COLUMBUS, O.

Chicago Branch, 48 S. Canal St. New York Branch, 15 Cortlandt St.



THE ADJUSTABLE
"Duplex" Die Stock

Quick. Accurate Durable.

15,000 now in Use.

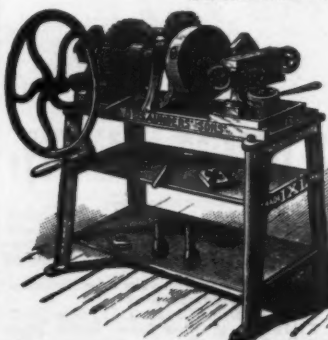
HART MANUFACTURING CO.

CLEVELAND, O.



D. SAUNDERS' SONS,

MANUFACTURERS OF THE ORIGINAL



TRADE **I.X.L.** MARK.

Pipe Cutting and Threading Machine.

BEWARE OF IMITATIONS.

None genuine without our Trade Mark and name. Also

Patent Wheel Pipe Cutter

STEAM AND GAS FITTERS' HAND TOOLS,

Pipe Cutting and Threading Machine

FOR PIPE MILL USE A SPECIALTY.

Send for Catalogue B.

31 Atherton St., Yonkers, N. Y.



H. K. PORTER & CO., PITTSBURGH, PA., U. S. A.

Light Locomotives and Noiseless Motors



All gauges of track for Passenger and Freight Service, Logging Railroads, Mines, Blast Furnaces, Steel Works, Coke Ovens, Contractors' Work and Plantations.

All sizes and patterns, adapted to steep grades and sharp curves. Noiseless and economical. Cheaper and more reliable and efficient, and less objectionable than electric or cable system.

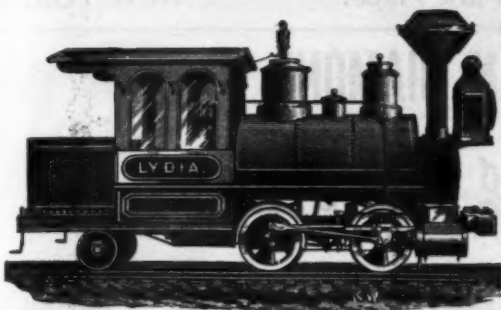
Photographs and illustrated catalogue on application. In writing mention MANUFACTURERS' RECORD.

Memo.—All work STEEL FITTED and built to duplicate system. Extra parts kept in stock. We keep on hand, ready for immediate shipment, LOCOMOTIVES AND MOTORS OF SEVERAL SIZES, WIDE OR NARROW GAUGE.



Richmond Locomotive & Machine Works, Richmond, Va.

ESTABLISHED IN 1885.



LOCOMOTIVES

for every variety of service in Standard Design or to meet views of purchasers.

MOTORS

for Street Railways, Tram Roads and Mines.

Stationary Engines for heavy duty.

BOILERS,

Standard or Special. Send for Catalogue, Specifications and Estimates.

BALDWIN LOCOMOTIVE WORKS

Established 1831.



Annual Capacity 1000.

LOCOMOTIVE ENGINES, adapted to every variety of service and built accurately to standard gauges and templates. LOCOMOTIVES FOR LOGGING Railroads and Sugar Estates.

COMPOUND LOCOMOTIVES.

STEAM TRAMWAY MOTORS, MINE LOCOMOTIVES, FURNACE LOCOMOTIVES.

BURNHAM, WILLIAMS & CO., Proprietors, 300 N. Broad St., Philadelphia, Pa.

Knoxville Car Wheel Co.

KNOXVILLE, TENN.

Manufacturers of all kinds of

CHILLED WHEELS.

For Railroads, Street Railroads, Ore and Coal Mines and Lumbermen.



Steam Hammers,
Foundry Cupolas,
Derricks, Crabs,
Horse-Powers,
Shieves, Drill Heads,
Gearing, Pulleys.
Locomotives and Engines
Repaired and Indicated.

Guild's Automatic
Boiler Cleaner,
Car and Locomotive Castings.
Soft Iron Castings of all kinds.
Heavy Castings a specialty.
Wheels mounted on Axles if
desired, with Oil Boxes
and Bolts.

CORRESPONDENCE SOLICITED.

MENTION THIS PAPER.

STEEL RAILS

PENNSYLVANIA

Standard Sections
Light Sections
Street Rails

Fish Plates,
Frogs, Switches

STEPHEN W. BALDWIN
SALES AGENT

CHAS. S. CLARK,
Sales Agent,

16 lbs. Full Size.

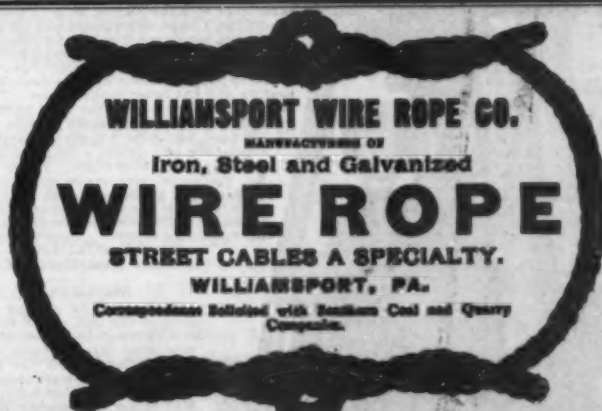
STEEL COMPANY

50 to 80 lbs. per yard
16 " 45 " " "
30 " 88 " " "
Bolts & Nuts,
and Crossings.

NO. 2 WALL STREET
NEW YORK N.Y.

70 Kilby Street,
Boston, Mass.

WIRE ROPE FOR ALL PURPOSES
IRON AND STEEL WIRE OF ALL KINDS
TRENTON IRON CO.
NEW YORK OFFICE TRENTON, N.J.
COOPER HEWITT & CO.
17 BURLING SLIP
WIRE ROPE TRAMWAYS & C



PHOSPHOR-BRONZE
INGOTS, CASTINGS & MANUFACTURES
THE PHOSPHOR BRONZE SMELTING CO. LIMITED
512 ARCH ST. PHILADELPHIA PA. U.S.A.
ORIGINAL MANUFACTURERS OF PHOSPHOR-BRONZE IN THE UNITED STATES AND OWNERS OF THE U.S. PATENTS

STEEL CASTINGS

FROM 1-4 TO 15,000 POUNDS WEIGHT.
True to pattern, sound, solid, free from blow-holes and of unequalled strength. Stronger and more durable than iron forgings in any position or for any service whatever.
\$5,000 CRANK SHAFTS and \$5,000 GEAR WHEELS of this Steel now running prove this.
Cross-Heads, Rockers, Piston-Heads, &c., for Locomotives.
STEEL CASTINGS of every description.
Send for Circulars and prices to
CHESTER STEEL CASTINGS CO.
Works, Chester, Pa. Office, 487 Liberty St., Philadelphia, Pa.



Improved Portable Hoisting Engines

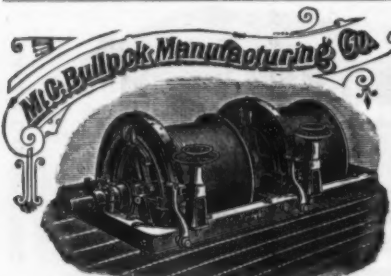
From 2 to 12 Horse-Power, Single and Double Cylinders, Single and Double Drum, second Drum entirely independent. The movement of lever makes a high purchase hoist.

OUR OWN PATENTS

Especially adapted for bridge builders, quarrymen and building contractors. Consult your interest by writing for price-list and circulars.

The John F. Byers Machine Co.

RAVENNA, OHIO.



Lane's Band Friction Single and Double Cylinder

PORTABLE HOISTS

STANDARD DRUMS,
Winze Hoists, Exploring Hoists,
Wire Rope L. Haulage Machines,
ORE BUCKETS, SKIPS,
CAGES AND SHEAVES,
STEAM PUMPS, BOILERS, Etc.

PHENIX BUILDING 138 JACKSON ST.

Bullock's Diamond Prospecting Core Drills,

For Surface or Underground Prospecting. No Restrictions as to Use.

THE ONLY RELIABLE DIAMOND DRILL MADE.

Improved Corliss Engine, Slide Valve and Straight Line Engines,
Eclipse Rock Drills, Air Compressors and Quarrying Machines.

WRITE FOR WHAT YOU WANT. Cable Address, BULLOCK, CHICAGO.
Denver Branch, 1,310 18th Street, R. D. Hobart, Manager.

DAVIDS' PATENT DISINTEGRATING MILL.

For Bones, Phosphates, Tankage, Ores, Clay, Fish, Scrap, Salt Cake, &c. FERTILIZER MACHINERY, Mixers' Rolls, Breakers, &c., &c. MARINE RAILWAYS, CLAY TEMPERERS. Send for Catalogue.

JAMES MURRAY & SON, 102 to 108 York Street, Baltimore, Md.

The Narod Dry Pulverizer.

THE NAROD DRY AND WET GRANULATOR.

TESTIMONIAL LETTERS.

WILMINGTON, N. C., July 21, 1891.
American Ore Machinery Co.,
No. 1 Broadway, New York.

Gentlemen—In answer to your favor of recent date, I would say that after nearly six months' experience with the "Narod Mill," under varying conditions, I have never regretted the purchase of the one we have. I think the "Narod" is by far the best and most economical Phosphate Grinder on the market. The Mill does not take 20 horse-power to drive it, runs smooth without heating and has never broken down. The product varies a little as to the kind of Phosphate ground, but I have not known it to do less than 3 1/2 tons per hour; under favorable conditions the mill grinds 4 tons per hour and will continue indefinitely. Pieces of iron, &c. getting in with crude material do not bother it, as is the case with most all other mills, and this I consider one of its strongest points. I think \$100 would more than cover the repairs for a year. Yours truly,

C. E. BORDEN,
Supt. Navassa Guano Co.

BALTIMORE, July 18, 1891.

Gentlemen—In answer to your favor of the 16th, would say we are still running the Narod Mill. It is now over three months since we first started it, and the longer it runs the better we are pleased. We believe it to be decidedly the best Mill in use for reducing Phosphate Rock, Ores, &c. Any man of ordinary intelligence can learn to run the Mill in a short time.

W. G. H. MYERS, Supt.
Maryland Fertilizer & Mfg. Co.

Fineness regulated by size mesh of screen in mill.

Capacity—Hard Quarts, 2 1/2 to 3; Phosphates, Cement, etc., 3 1/2 to 4 tons per hour.

Only 15 to 20 horse-power required. Weight of each mill 5,000 pounds. The heavier parts can be made suitable for mountain use.

Pulverizer produces from 20 to 200 mesh fineness Granulator from size of wheat berry to 20 mesh. Both mills fed in size 1/4-inch cube and under. Deliver finished and uniform product through screen into hopper below. Only wearing parts are rolls and ring, which are made of best chilled carbonized iron, dense and fibrous, hence durable.

TRIPOD STANDARDS, TRIPOD ROLL SHAFTS. Latest, Most Durable, Most Capable Ever Made. Simple in construction. A novice can run them. Only two sizes of bolts used. No oil cups. Journals run in pots of oil. Grit cannot enter. Journals cannot heat. No dust chambers. No exhaust fans.

AMERICAN ORE MACHINERY CO.

No. 1 Broadway, New York, N. Y., U. S. A.

H. B. ELDRIDGE, Southern Agent.

Rock Drilling and Air Compressing MACHINERY

TUNNELS, QUARRIES, MINES, RAILROADS,

And wherever Ore and Rock are to be Drilled and Blasted.

RAND DRILL CO.

23 Park Place,

NEW YORK.

SULLIVAN DIAMOND

Prospecting Core Drills.

THE MOST RELIABLE AND
SATISFACTORY MADE FOR PROSPECTING FROM THE
SURFACE OR UNDER GROUND.

RAPID! ACCURATE! ECONOMICAL!

SPECIALY ADAPTED TO SOUTHERN COAL AND IRON FORMATIONS.

Hand or Power Drills,

Capacities 300 to 4,000 feet. All sizes in stock.

SEND FOR CATALOGUE.

Sullivan Diamond-Pointed and Steel
Gang Quarrying Machinery.
Steam Pumps, Boilers.

Contractors for prospecting mineral lands with the
Diamond Core Drill.

DIAMOND PROSPECTING CO.

15 and 17 N. Clinton Street,

Eastern Office, 18 Broadway, New York.
Cable Address, "DIAMOND, CHICAGO."

CHICAGO, ILL.

Webster, Camp & Lane Machine Co.

BAND FRICTION HOISTS.

Endless and Tail Rope
Haulage Engines for

COAL MINES.

Automatic and Slide Valve
Steam Engines, Boilers,
Pumping Plants, Cages,
Ore Cars, Sheaves, etc.

AKRON, O.

BACON Winding Engines, Furnace Hoists, Mine Hoists.

(WITH OR WITHOUT BOILERS.)

"MINING PLANTS," CONCENTRATING WORKS, AND DREDGING
MACHINERY FURNISHED COMPLETE.

COPELAND & BACON,

85 Liberty St., New York.

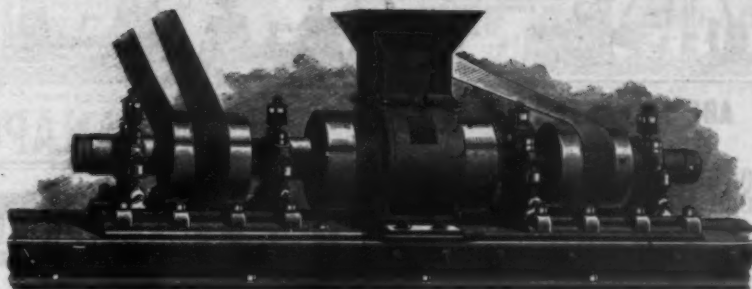
335 Arch Street, Philadelphia.

REFERENCES: Croton Magnetic Iron Mines, Brewsters N. Y.
Croton Point Iron Co., Crown Point, N. Y.
Belvidere Iron Co., 32 Broadway, N. Y.
Sea Island Chemical Co., Savannah, S. C.

BOOKS. NEWSPAPERS. CIRCULARS. FINE CUT WORK
Record Printing House, Cor. Exchange Pl. and Commerce St.
PAMPHLETS. CATALOGUES. PRICE-LISTS. A SPECIALTY.

THE STURTEVANT MILL.

The only Crusher and Pulverizer combined for reducing ores, phosphate rock, cement and all hard and refractory material, developing an entirely new principle (rock grinding rock) thus reducing wear on machine to a minimum. Unequaled in capacity and economy. A large number in successful operation. Used and endorsed by the most prominent engineers and users of grinding machinery. Grinds from one



to twenty tons per hour, according to fineness. Single machines in daily operation grinding 20 tons per hour magnetic iron ore, 100 barrels per hour cement, and 6 to 8 tons per hour phosphate rock to pass a 60-mesh sieve at a cost far below any known process. Will not wear out. Machines running daily for several years practically as good as new. Wearing parts renewed at slight cost.

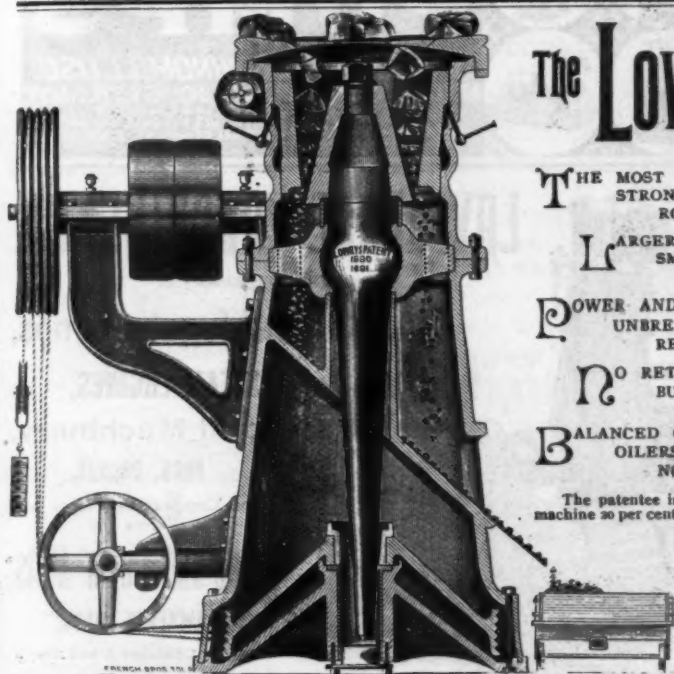
Also sole manufacturers of Patent Rock Emery Mill Stones. Superior to the best French Buhr Stones, requiring little dressing, and much more durable, emery being harder and more cutting. One pair Emery Stones at about same cost will outwear two pair Buhrs. The saving in dressing alone will more than pay first cost. Will fit any Buhr Mill Frame. Send for circulars and testimonials, and mention this paper.



STURTEVANT MILL COMPANY,

No. 88 Mason Building, No. 70 Kilby Street,

Boston, Mass., U. S. A.



The Lowry National Rock and Ore Breaker

- T**HE MOST EFFICIENT STONE BREAKER EVER MADE. STRONG AND SIMPLE IN CONSTRUCTION. GRIT CANNOT ENTER. ROPE DRIVEN AND MUCH HIGHER SPEED ATTAINED.
- L**ARGER QUANTITY OF ROCK BROKEN. SMALLER CRUSHER HEAD AND HOPPER. ADMITS STANDARD SIZE ROCK. CAPACITY FIVE TONS PER HOUR, UP TO 250, ACCORDING TO SIZE OF MACHINE.
- P**OWER AND DRIVER ON MACHINE, MAKING IT SELF-CONTAINED, and Bearings always in Line. UNBREAKABLE GYROTARY SHAFT, HAS ONE-THIRD MORE LEVERAGE. READILY SET TO BREAK ANY SIZE REQUIRED ONCE THROUGH.
- N**O RETURNS TO BE PULVERIZED OVER AND OVER AGAIN AS IN OTHERS. BUILT OPEN TOP, SEMI-OPEN, OR ROTARY FEED FOR FINE CRUSHING. NOS. 1, 2, 3, 4, 5, 6, 7, 8 AND 9, THE SIZES BUILT.
- B**ALANCED GYROTARY SHAFT, RUNS IN A CLOSED OIL CUP. OILERS AND JACK SCREWS FOR ADJUSTMENT ON THE OUTSIDE. NO DUST RINGS, SAFETY PINS OR GEAR WHEELS TO BREAK.

The patentee is open to arrange a competitive trial with any rock crusher builder, and will give any other gyrotary shaft machine 20 per cent. start, and any jaw crusher 30 per cent.

For Prices, Photos, and Particulars, Apply to

THE NATIONAL MACHINERY CO.

GREENFIELD STREET, TIFFIN, OHIO.

GATES ROCK AND ORE BREAKER.

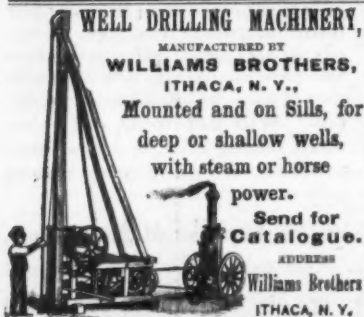


CAPACITY IN TONS OF 2,000 POUNDS.									
Size 1—2 to 4 tons per hour.					Size 4—15 to 20 tons per hour.				
cc	1	2	3	4	cc	5	10	15	20
cc	1	2	3	4	cc	5	10	15	20
cc	2	3	4	5	cc	6	10	15	20
cc	3	4	5	6	cc	7	10	15	20
cc	4	5	6	7	cc	8	10	15	20
cc	5	6	7	8	cc	9	10	15	20
cc	6	7	8	9	cc	10	15	20	25
cc	7	8	9	10	cc	11	15	20	25
cc	8	9	10	11	cc	12	15	20	25
cc	9	10	11	12	cc	13	15	20	25
cc	10	11	12	13	cc	14	15	20	25
cc	11	12	13	14	cc	15	20	25	30
cc	12	13	14	15	cc	16	20	25	30
cc	13	14	15	16	cc	17	20	25	30
cc	14	15	16	17	cc	18	20	25	30
cc	15	16	17	18	cc	19	20	25	30
cc	16	17	18	19	cc	20	25	30	35
cc	17	18	19	20	cc	21	25	30	35
cc	18	19	20	21	cc	22	25	30	35
cc	19	20	21	22	cc	23	25	30	35
cc	20	21	22	23	cc	24	25	30	35
cc	21	22	23	24	cc	25	30	35	40
cc	22	23	24	25	cc	26	30	35	40
cc	23	24	25	26	cc	27	30	35	40
cc	24	25	26	27	cc	28	30	35	40
cc	25	26	27	28	cc	29	30	35	40
cc	26	27	28	29	cc	30	35	40	45
cc	27	28	29	30	cc	31	35	40	45
cc	28	29	30	31	cc	32	35	40	45
cc	29	30	31	32	cc	33	35	40	45
cc	30	31	32	33	cc	34	35	40	45
cc	31	32	33	34	cc	35	40	45	50
cc	32	33	34	35	cc	36	40	45	50
cc	33	34	35	36	cc	37	40	45	50
cc	34	35	36	37	cc	38	40	45	50
cc	35	36	37	38	cc	39	40	45	50
cc	36	37	38	39	cc	40	45	50	55
cc	37	38	39	40	cc	41	45	50	55
cc	38	39	40	41	cc	42	45	50	55
cc	39	40	41	42	cc	43	45	50	55
cc	40	41	42	43	cc	44	45	50	55
cc	41	42	43	44	cc	45	50	55	60
cc	42	43	44	45	cc	46	50	55	60
cc	43	44	45	46	cc	47	50	55	60
cc	44	45	46	47	cc	48	50	55	60
cc	45	46	47	48	cc	49	50	55	60
cc	46	47	48	49	cc	50	55	60	65
cc	47	48	49	50	cc	51	55	60	65
cc	48	49	50	51	cc	52	55	60	65
cc	49	50	51	52	cc	53	55	60	65
cc	50	51	52	53	cc	54	55	60	65
cc	51	52	53	54	cc	55	60	65	70
cc	52	53	54	55	cc	56	60	65	70
cc	53	54	55	56	cc	57	60	65	70
cc	54	55	56	57	cc	58	60	65	70
cc	55	56	57	58	cc	59	60	65	70
cc	56	57	58	59	cc	60	65	70	75
cc	57	58	59	60	cc	61	65	70	75
cc	58	59	60	61	cc	62	65	70	75
cc	59	60	61	62	cc	63	65	70	75
cc	60	61	62	63	cc	64	65	70	75
cc	61	62	63	64	cc	65	70	75	80
cc	62	63	64	65	cc	66	70	75	80
cc	63	64	65	66	cc	67	70	75	80
cc	64	65	66	67	cc	68	70	75	80
cc	65	66	67	68	cc	69	70	75	80
cc	66	67	68	69	cc	70	75	80	85
cc	67	68	69	70	cc	71	75	80	85
cc	68	69	70	71	cc	72	75	80	85
cc	69	70	71	72	cc	73	75	80	85
cc	70	71	72	73	cc	74	75	80	85
cc	71	72	73	74	cc	75	80	85	90
cc	72	73	74	75	cc	76	80	85	90
cc	73	74	75	76	cc	77	80	85	90
cc	74	75	76	77	cc	78	80	85	90
cc	75	76	77	78	cc	79	80	85	90
cc	76	77	78	79	cc	80	85	90	95
cc	77	78	79	80	cc	81	85	90	95
cc	78	79	80	81	cc	82	85	90	95
cc	79	80	81	82	cc	83	85	90	95
cc	80	81	82	83	cc	84	85	90	95
cc	81	82	83	84	cc	85	90	95	100
cc	82	83	84	85	cc	86	90	95	100
cc	83	84	85	86	cc	87	90	95	100
cc	84	85	86	87	cc	88	90	95	100
cc	85	86	87	88	cc	89	90	95	100
cc	86	87	88	89	cc	90	95	100	105
cc	87	88	89	90	cc	91	95	100	105
cc	88	89	90	91	cc	92	95	100	105
cc	89	90	91	92	cc	93	95	100	105
cc	90	91	92	93	cc	94	95	100	105
cc	91	92	93	94	cc	95	100	105	110
cc	92	93	94	95	cc	96	100	105	110
cc	93	94	95	96	cc	97	100	105	110
cc	94	95	96	97	cc	98	100	105	110
cc	95	96	97	98	cc	99	100	105	110
cc	96	97	98	99	cc	100	105	110	115
cc	97	98	99	100	cc	101	105	110	115
cc	98	99	100	101	cc	102	105	110	115
cc	99	100	101	102	cc	103	105	110	115
cc	100	101	102	103	cc	104	105	110	115
cc	101	102	103	104	cc	105	105	110	115
cc	102	103	104	105	cc	106	105	110	115
cc	103	104	105	106	cc	107	105	110	115
cc	104	105	106	107	cc	108	105	110	115
cc	105	106	107	108	cc	109	105	110	115
cc	106	107	108	109	cc	110	105	110	115
cc	107	108	109	110	cc	111	105	110	115
cc	108	109	110	111	cc	112	105	110	115
cc	109	110	111	112	cc	113	105	110	115
cc	110	111	112	113	cc	114	105	110	115
cc	111	112	113	114	cc	115	105	110	115
cc	112	113	114	115	cc	116	105	110	115
cc	113	114	115	116	cc	117	105	110	115
cc	114	115	116	117	cc	118	105	110	115
cc	115	116	117	118	cc	119	105	110	115
cc	116	117	118	119	cc	120	105	110	115
cc	117	118	119	120	cc	121	105	110	115
cc	118	119	120	121	cc	122	105	110	115
cc	119	120	121	122	cc	123	105	110	115
cc	120	121	122	123	cc	124	105	110	115
cc	121	122	123	124	cc	125	105	110	115
cc	122	123	124	125	cc	126	105	110	115
cc	123	124	125	126	cc	127	105	110	115
cc	124	125	126	127	cc	128	105	110	115
cc	125	126	127	128	cc	129	105	110	115
cc	126	127	128	129	cc	130	105	110	115
cc	127	128	129	130	cc	131	105	110	115
cc	128	129	130	131	cc	132	105	110	115
cc	129	130	131	132	cc	133	105	110	115
cc	130	131	132	133	cc	134	105	110	115
cc	131	132	133	134	cc	135	105	110	115
cc	132	133	134	135	cc	136	105	110	115
cc	133	134	135	136	cc	137	105	110	115
cc	134	135	136	137	cc	138	105	110	115
cc	135	136	137	138	cc	139	105	110	115
cc	136	137	138	139	cc	140	105	110	115
cc	137	138	139	140	cc	141	105	110	115
cc	138	139	140	141	cc	142	105	110	115
cc	139	140	141	142	cc	143	105	110	115
cc	140	141	142	143	cc	144	105	110	115
cc	141	142	143	144	cc	145	105	110	115
cc	142	143	144	145	cc	146	105	110	115
cc	143	144	145	146	cc	147	105	110	115
cc	144	145	146	147	cc	148	105	110	115
cc	145	146	147	148	cc	149	105	110	115
cc	146	147	148	149	cc	150	105	110	115
cc	147	148	149	150	cc	151	105	110	115
cc	148	149	150	151	cc	152	105	110	115
cc	149	150	151	152	cc	153	105	110	115
cc	150	151	152	153	cc	154	105	110	115
cc	151	152	153	154	cc	155	105	110	115
cc	152	153	154	155	cc	156	105	110	115
cc	153	154	155	156	cc	157	105	110	115
cc	154	155	156	157	cc	158	105	110	115
cc	155	156	157	158	cc	159	105	110	115
cc	156	157	158	159	cc	160	105	110	115
cc	157	158	159	160	cc	161	105	110	115
cc	158	159	160	161	cc	162	105	110	115
cc	159	160	161	162	cc	163	105	110	115
cc	160	161	162	163	cc	164	105	110	115
cc	161	162	163	164	cc	165	105	110	115
cc	162	163	164	165	cc	166	105	110	115
cc	163	164	165	166	cc	167	105		



Maslin's Patent Steam Pump.
Cheapest and Best Automatic Steam Vacuum Pump. Handles DIRTY and GRITTY LIQUIDS without Oil or Care. Simplest and most durable Pump made, as partial removal of two bolts makes every valve readily accessible. Pumping Plants for Contractors, Irrigation, Water Works, Railroads, Mining and General Hydraulic Purposes. Send for Circulars.

JOHN MASLIN & SON,
Sole Mfrs. 165-167 1st St. Jersey City, N. J.



WELL DRILLING MACHINERY,
MANUFACTURED BY
WILLIAMS BROTHERS,
ITHACA, N. Y.,

Mounted and on Sills, for deep or shallow wells, with steam or horse power.

Send for Catalogue.

Address
Williams Brothers
ITHACA, N. Y.

ALLENTOWN FOUNDRY & MACHINE CO.
ALLENTOWN, PA.
MACHINERY
FOR
PAINT
POWDER
CEMENT
& BARK
MINING & MANUFACTURING
LIGHT & HEAVY
MILLS MILL GEARING.
SHAFTING, PULLEYS,
CLUTCHES, HANGERS,
IMPROVED EUREKA TURBINE.
BLAST FURNACE WORK.
STIBELS, HOPPERS, HOT BLAST
CASTINGS-HEAVY OR LIGHT-MADE TO ORDER

Works and General Office
ANNAPOLIS, MD.

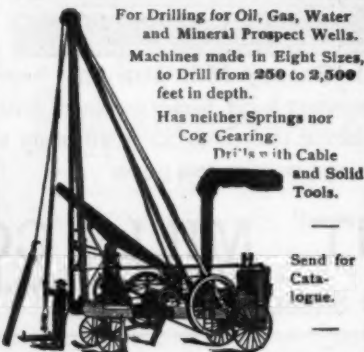


LIGHTNING WELL-SINKING MACHINERY MANUFACTURERS.
Hydraulic, Jetting, Revolving, Artesian, Diamond Prospecting Tools, Engines, Boilers, Wind Mills, Pumps. Every class of machinery, Earth's strata, Deterioration quality water, called, etc. The American Well Works, Aurora, Ill.
11 & 13 S. Canal Chicago, Ill.
Baltimore, Tenn.

ARE YOU AFTER MONEY?

THEN BUY A

Star Portable Drilling Machine



For Drilling for Oil, Gas, Water and Mineral Prospect Wells. Machines made in Eight Sizes, to Drill from 250 to 2,500 feet in depth.

Has neither Springs nor Cog Gearing. Drills with Cable and Solid Tools.

Send for Catalogue.

STAR DRILLING MACHINE CO.

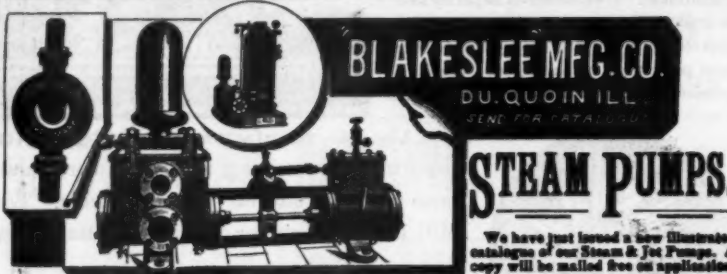
AKRON, OHIO.

Manufacturers of Drilling & Fishing Tools, Also Oil Well Supplies.

DEAN BROS' STEAM PUMP WORKS.



BOILER FEEDER BREWERS AIR PUMP FIRE PUMP DUPLEX PUMP
PUMPING MACHINERY FOR ALL PURPOSES. **INDIANAPOLIS, IND.** SEND FOR CATALOGUE AND PRICES.



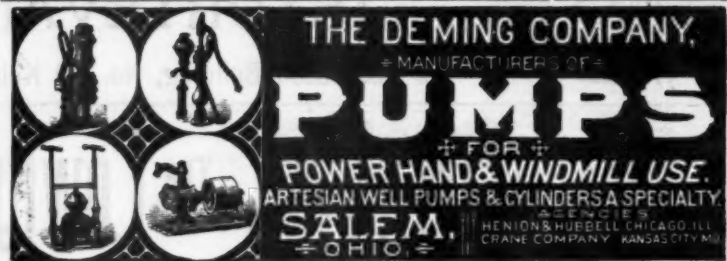
BLAKESLEE MFG. CO.

DU QUOIN ILL.

SEND FOR CATALOGUE

STEAM PUMPS.

We have just issued a new illustrated catalogue of our Steam & Jet Pumps. A copy will be mailed free on application.



THE DEMING COMPANY,

MANUFACTURERS OF

PUMPS

FOR

POWER HAND & WINDMILL USE.

ARTESIAN WELL PUMPS & CYLINDERS A SPECIALTY.

SALEM, OHIO.

AGENCIES: HENION & HUBBELL CHICAGO, ILL. CRANE COMPANY KANSAS CITY, MO.

The Baldwinsville Centrifugal Pump.

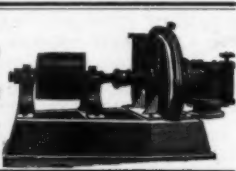
OLDEST, BEST AND LATEST IMPROVED.

Especially adapted for contractors' use. Pumping Coffer Dams, Sewers, Sand-Pumping, etc.

Irrigating Plants a Specialty. Address for catalogue,

IRVIN VAN WIE, 48 & 50 West St., Syracuse, N. Y.

Established 1867. Removed to Syracuse 1885.



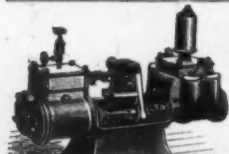
Voisard's Improved DUPLEX STEAM PUMPS,

With Patent Duplicate Levers and Valve Gear.

MANUFACTURED BY

VOISARD, WAECHTER & CO., Canton, Ohio.

Write for DESCRIPTION and PRICES.



PUMPS

THE JOHN H. MCGOWAN CO.

42, 44, 46 Central Ave., CINCINNATI, O. | Branch House, 1425 E. Main St., RICHMOND, VA.

... SEND FOR CATALOGUE ...



OVER 20000 BEST AND CHEAPEST IN USE
PULSOMETER STEAM PUMP KNOWN PURPOSES
FOR ALL
PULSOMETER STEAM PUMP CO. SOLE OWNERS-NEW YORK.
(COPYRIGHTED 1891)



HYDRAULIC PRESSES and PUMPS FOR ALL PURPOSES.



Baling Presses,
Oil Presses,
Car Wheel Presses,
Crank Pin Presses,
Embossing Presses,
Die Presses, and
All Kinds of Presses.

WATSON & STILLMAN,

Forging Press.



Plain Press.

Hand Pumps,
Belt Pumps,
Steam Pumps,
Automatic Pumps,
Variable Delivery Pumps,
and over 30 kinds of
Pumps, Accumulators,
Valves, Gauges,
Fittings, &c.

204-210 E. 43d St., New



Curb Press.

LAWRENCE MACHINE CO.

MANUFACTURERS OF

Centrifugal Pumps,

STEAM ENGINES,

General Machinery,

PHOS. BRONZE,

And Composition Pumps and

Valves for

Pulp and Paper Mills,

LAWRENCE, MASS.

Send for Catalogue A and Dis...



The Improved Smith & Vaile

SINGLE, DUPLEX AND COMPOUND

Steam Pumps

FOR EVERY DUTY.



Water-Works Machinery.

The SMITH & VAILE CO.

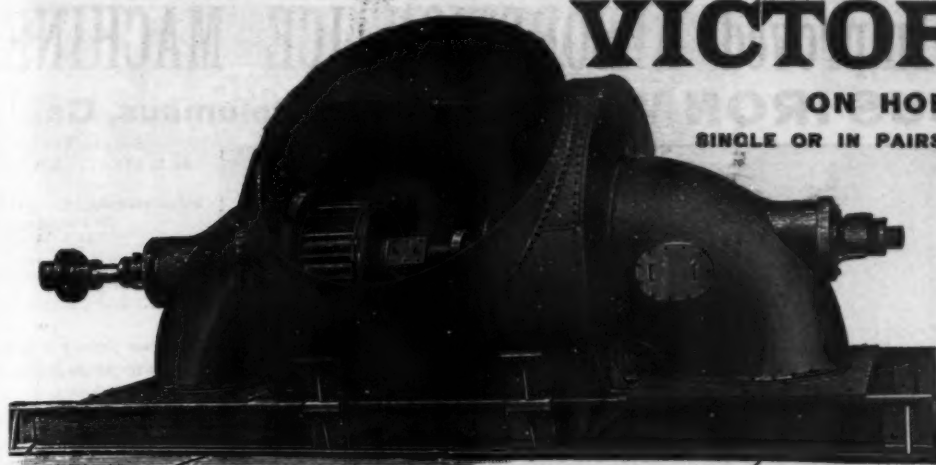
DAYTON, OHIO, and NEW YORK,

112 LIBERTY STREET.

SOUTHERN AGENTS:

D. A. TOMPKINS CO., - - - - - CHARLOTTE, N. C., and ATLANTA, GA.

MCARDLE & SINCLAIR, 50 Baronne Street, NEW ORLEANS, LA.



VICTOR TURBINE

ON HORIZONTAL SHAFT.

SINGLE OR IN PAIRS.

DISPENSING ENTIRELY WITH GEARS.

Actual Test of the VICTOR in Testing Flume, Holyoke, Mass.

Size of Wheel.	Head in Ft.	Horse Power.	Per Ct. Useful Effect.
18-inch	18.06	39.17	.8933
17 1/2-inch	17.96	36.35	.8920
20-inch	18.21	49.00	.8932
25-inch	17.90	68.63	.8934
30-inch	11.65	52.54	.8976
35-inch	17.30	133.19	.8977
40-inch	16.49	148.93	.8933
48-inch	15.51	179.29	.8903

VICTOR WATER WHEELS, UPRIGHT OR HORIZONTAL, FINISHED ON SHORT NOTICE.

RECENT SOUTHERN PATRONS: Clifton Mfg. Co., Piedmont Mfg. Co., Camperdown Mfg. Co., Whitney Mfg. Co., Peiser Mfg. Co., Enoree Mfg. Co., Henrietta Mills, Pacolet Mfg. Co. and others.

State your requirements and send for catalogue to the

STILWELL & BIERCE MFG. CO.

DAYTON, OHIO, U. S. A.



ARTESIAN WELL PUMP.

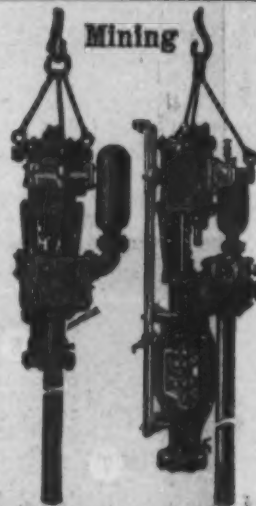


CAMERON STEAM PUMPS.

PUMPS FOR
BOILER-FEEDING,
MINES,
REFINERIES,
BREWERIES,
TANNERIES,
IRRIGATING,
FIRE PURPOSES,
RAILROADS and
FILLING TANKS,
CRANK and
FLY WHEEL
And VACUUM

SEND FOR
Illustrated Catalogue A.

SIMPLE,
COMPACT,
DURABLE,
EFFICIENT.
ADAPTED TO
ALL PURPOSES.
NO OUTSIDE
VALVE GEAR.



Mining

Fulton Pattern.

Fulton Pattern.

The A. S. Cameron Steam Pump Works,
Foot of East 23d Street,

NEW YORK.



VALLEY PUMP CO. EASTHAMPTON, MASS.

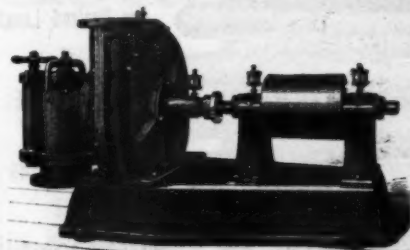
STEAM
PUMPS

THE BUFFALO STEAM PUMP CO.

BUFFALO, N. Y. MANUFACTURERS OF

STEAM PUMPS

FOR ALL DUTIES.



Send for Catalogue.

HEALD & SISCO CENTRIFUGAL PUMPS

17,000 in Use.

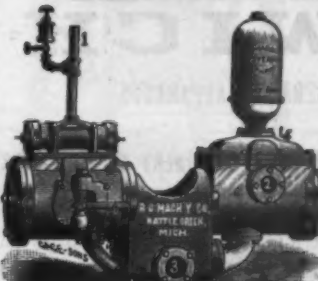
Capacity 40 to 50,000 Gallons Per Minute.

ALL SIZES IN STOCK. Guaranteed superior to any other make. Our special Dredging Pumps will pass solids 10 in. in diameter. Our Sand Pumps can be seen running in St. Louis, Kansas City, Chattanooga, Memphis, Decatur, Louisville and many parts of the South.

MORRIS MACHINE WORKS,

Baldwinsville, N. Y.

MARSH STEAM PUMP.



Absolute actuation and regulation without use of tappets, levers or other mechanical connections. The most economical boiler feeder made. Returns exhaust steam to the boiler. Heats feed water 40 to 50 degrees, according to tests made by Prof. M. E. Cooley, of University of Michigan. Sizes—For boilers, 10 to 500 horse-power.

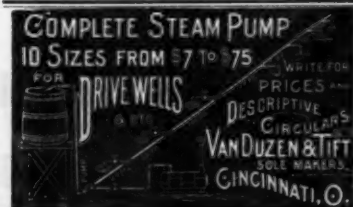
AGENTS.

N. O. Nelson Mfg. Co., St. Louis; Stannard & Dillon, Chicago; Valk & Murdoch, Charleston, S. C.; Milton W. Barkhouse, Louisville, Ky.; E. L. Cole, New Orleans, La.; Keating Implement & Machine Co., Dallas, Texas. Send for Catalogue to the

Battle Creek Machinery Co.

SOLE MANUFACTURERS,

BATTLE CREEK, MICHIGAN.



STEAM LAUNCHES,



STEAM YACHTS & TOW BOATS,

HIGH SPEED MARINE ENGINES All types of boat boilers, including the ROBERTS WATER TUBE SAFETY BOILER with our improvements. CHAS. P. WILLARD & CO., Catalogue free. 5 Dominick St., Chicago.

Subscribe to the MANUFACTURERS' RECORD.

The Sturtevant Steam Hot Blast Apparatus

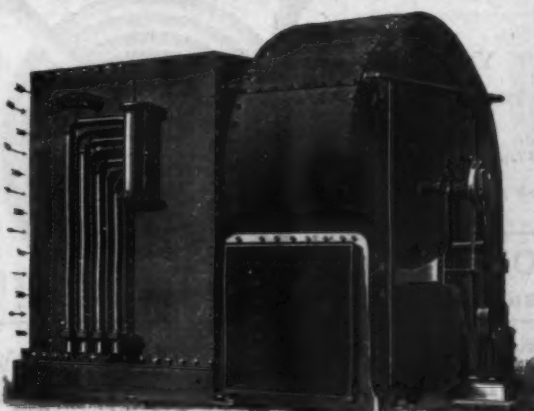
=FOR=

Heating AND Ventilating

Public and Office Buildings, Stores and Manufacturing Establishments of all classes, and for drying Wood, Wool, Cotton, Tobacco, Glue, Grain, &c. Send for illustrated treatise on Ventilation and Heating.

B. F. STURTEVANT CO.

84 Oliver Street, Boston, Mass.



BRANCHES—91 Liberty St., New York; 16 S. Canal St., Chicago; 335 N. Third St., Philadelphia, Pa. W. R. Burgess, agent, Greensboro, N. C.

BUFFALO SCALE COMPANY. BUFFALO, N. Y. SCALES OF ALL KINDS.

Columbus Iron Works Improved ABSORPTION ICE MACHINE.

BUILT BY THE **COLUMBUS IRON WORKS CO., Columbus, Ga.**

Successors to
H. D. STRATTON & CO.

Established 1855.
Incorporated 1896.

W. R. BROWN, President.
W. COOK, Superintendent.

Machines from 5 to 33 tons
capacity per 24 hours, or
larger if desired.

94 Machines
built, and all in successful
operation.

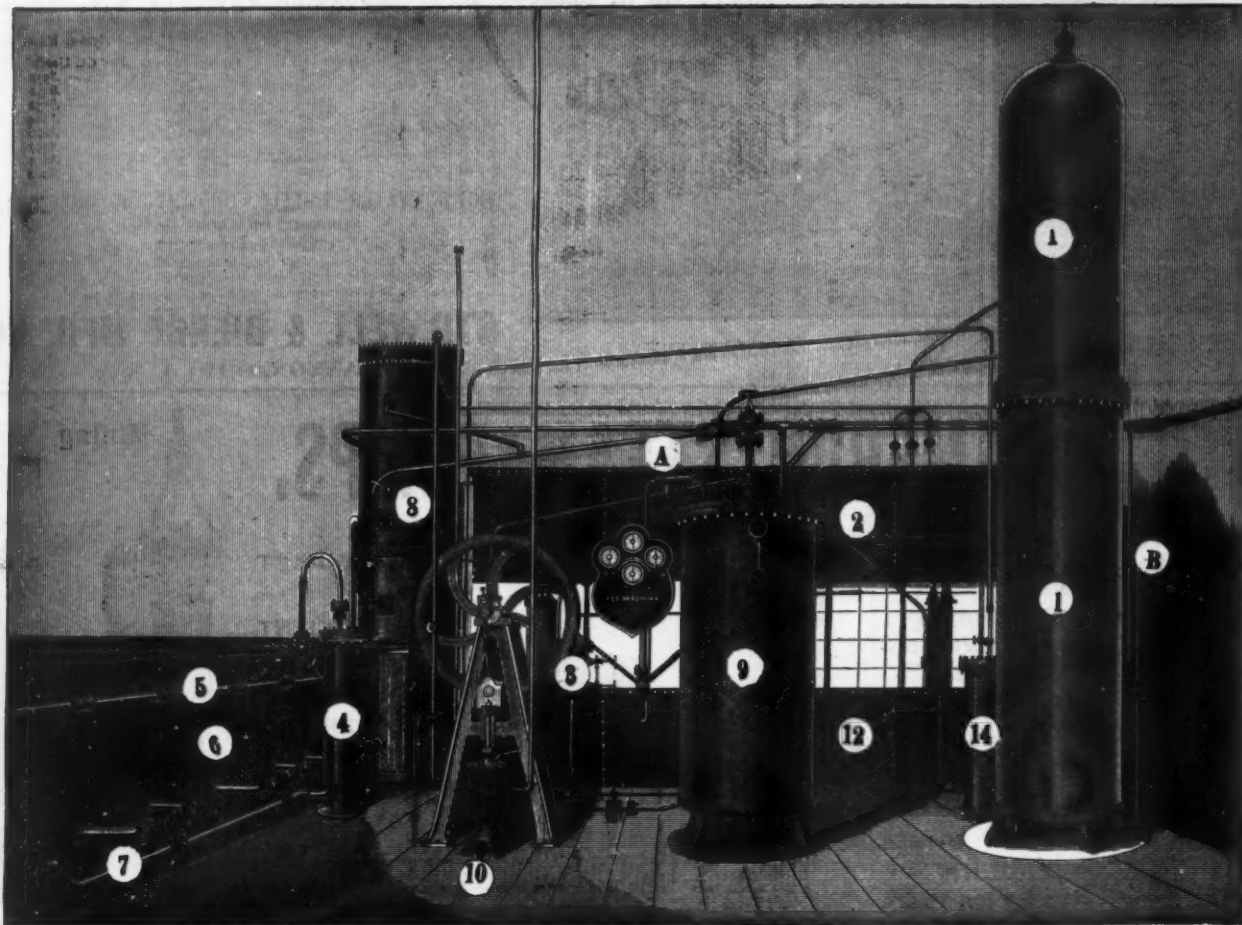
More Ice Making Machines
Sold in the South than
any other establishment.

No expensive building
required.

No pressure on machine
when stopped.

Send for price-list and
illustrated circular with
location of machines.

This establishment was the
first to turn out a perfect
and complete Ice Machine,
and has been in the
business as years, con-
stantly manufacturing
and improving, and are
prepared to furnish the
most reliable and economi-
cal machine in the
market.



ICE-MAKING MACHINERY.

SIMPKIN, HILLYER & CO.

MANUFACTURERS OF THE

*** WARWICK ***

ICE MACHINE AND REFRIGERATING APPARATUS.

THE SIMPLEST AND MOST EFFECTIVE ICE-MAKING MACHINERY ON THE MARKET.

VESSEL AND STEAMSHIP PLANTS.

Works, NEWPORT NEWS, VA. General Office, RICHMOND, VA.

ANALYSES.

LEDOUX & COMPANY,
CHEMISTS,

No. 9 CLIFF STREET, NEW YORK.

Are the OFFICIAL CHEMISTS of the NEW YORK PRODUCE
EXCHANGE and THE LINSEED ASSOCIATION.

Also, Analysts to the NATIONAL LEAD & OIL CO.

Analyses of PAINTS, OILS, CHEMICALS, PHOSPHATES, FERTILIZERS, MINERALS,
WATERS, PYRITES, ETC., ETC.

EXPERT EXAMINATIONS and Investigations of PROCESSES and CHEMICAL WORKS.

SEND FOR TERMS.

ORE WASHERS HAUCK & COMSTOCK,
MECHANICSBURG, PA.

McLANAHAN & STONE, Engineers and Manufacturers,
GAYSPORT FOUNDRY, HOLLIDAYSBURG, PA.

Blast Furnace, Rolling Mill and Heavy Castings and Machinery for all purposes.

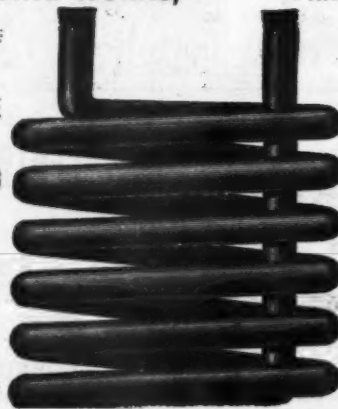
ORE JIGS, IMPROVED ORE WASHERS,
with Revolving Screens and Picking Tables.
Elevators and Conveyors, Etc.
COMPLETE PLANTS FOR WASHING HEMATITE ORES AT LEAST COST.

JAMES D. CARDELL & CO.

PIPE BENDING WORKS,

Philadelphia, Pa.

Coils of
WROUGHT IRON PIPE
for
ICE and REFRIGERATING
MACHINES,
CHEMICAL WORKS,
SOAP WORKS,
BLAST FURNACES.



Coils of
Any Desired Length
of
WELDED PIPE.
PIPE BENDING
and
WELDING A SPECIALTY

FARRELL & REMPE, Manufacturers of

Wrought Iron Pipe Coils

FOR
Ice and Refrigerating Machines.

COILS OF ALL DESCRIPTIONS FOR
Heaters, Soap Makers, Chemical
Works, Blast Furnaces, &c.

PIPE BENDING of All Kinds A SPECIALTY.

799, 801, 803 & 805 OGDEN AVENUE,
Cor. Campbell Ave., CHICAGO, ILL.



**HOWARD HYDRAULIC
CEMENT.**

For information and prices write to

HOWARD HYDRAULIC CEMENT CO., Chattanooga, Tenn.



THE DENN WARPER

WITH NEW DOUBLE LINKER,

Makes the BEST WARP in use.

SEND FOR CUTS AND PRICES.

Single Linkers Altered to Double Linkers.

GLOBE MACHINE WORKS,

FRANKFORD, PA.

Cotton Seed Oil Mills We are making Various Sizes, from the PLANTATION MILLS of five tons to the LARGE CITY MILL of fifty tons per day. Our Mills have all the Latest Modern Improvements in Machinery, and produce the very best results.

Hydraulic Cotton Presses SIMPLE, COMPACT AND VERY POWERFUL. Worked either by Hand or Steam-power. Not liable to get out of order and very durable. They are the BEST BALEING PRESS made for Cotton, Wool, Rags, &c.

Threshers and Cleaners For WHEAT, OATS and RICE. The Simplest, Cheapest and Best Made.

Information furnished upon application to

THE CARDWELL MACHINE COMPANY, RICHMOND, VA.

VAN WINKLE GIN & MACHINERY CO.

ATLANTA, GA., and DALLAS, TEX.

MANUFACTURERS OF

COTTON GINS, FEEDERS,

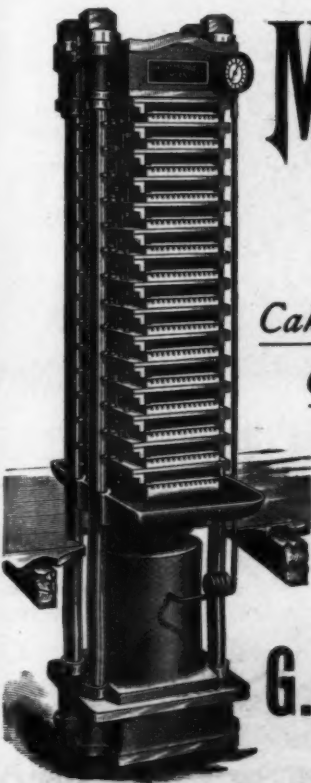
CONDENSERS AND PRESSES,

Cotton-Seed Oil Mills

ICE MACHINERY.

SHAFTING, PULLEYS, WIND MILLS, TANKS, PUMPS, Etc.

Cotton-Seed Oil



Machinery.

GET THE BEST.

Presses, Pumps,

Cake Formers, Meal Heaters,

Chilled Roll Crushers,

Etc.

Send for Cuts and Prices.

G. H. BUSHNELL CO.

THOMPSONVILLE, CONN., U. S. A.

IMPROVED HYDRAULIC PRESS.

Our Oil Presses are fitted with Tiffany Oil Main, Steel Bones, Cast Steel Cylinders.

NONE BETTER.

LOWELL MACHINE SHOP,

LOWELL, MASS.

Cotton Machinery

We Manufacture Everything Required for the Complete Equipment of Cotton Mills.

Plans and Estimates Furnished on Application.

Correspondence Solicited.



NYE & TREDICK

MANUFACTURERS OF

Automatic Circular Rib

Knitting Machines

FOR

Plain and Fancy Ribbed Underwear, Skirts, Caps, Jackets, Jerseys, Loggings, &c.

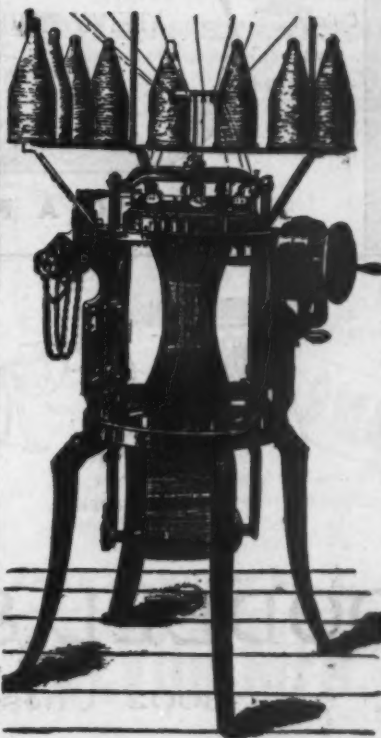
AGENTS FOR THE

KEYSTONE KNITTER,

FOR

SEAMLESS HOSIERY.

Winders, Loopers, Steam Presses, Healers and Shirt Boards, &c.



NYE & TREDICK, 608 Arch Street, Philadelphia, Pa.



The SALEM WIRE NAIL CO.

MANUFACTURERS

Wire Nails

Works: SALEM, O.; FINDLAY, O.

General Office: SALEM, OHIO.

BRANCH OFFICES:

261 Broadway, New York. 415 Phoenix Bldg., Chicago. 199 Souard Street, St. Louis. 4 Wiggins Block, Cincinnati.

Advertise in the Manufacturers' Record.

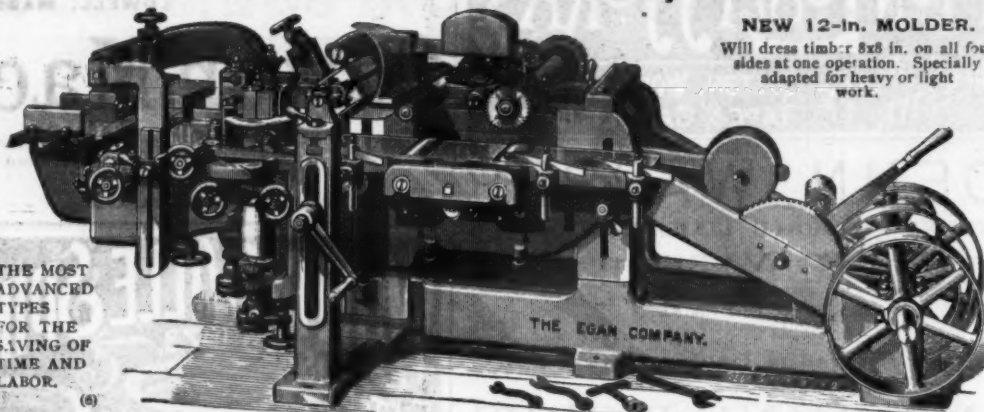
THE EGAN COMPANY,

228 to 248 West Front St.

CINCINNATI, OHIO, U. S. A.

ORIGINATORS and Builders of

Wood Working Machinery

The Most Recent Ideas for Fast
and Perfect Work.THE MOST
ADVANCED
TYPES
FOR THE
SAVING OF
TIME AND
LABOR.NEW 12-in. MOLDER.
Will dress timber 8x8 in. on all four
sides at one operation. Specially
adapted for heavy or light
work.THE LARGEST LINE
IN THE U. S.COMPLETE OUTFITS or
Single Machines Supplied
For Planing Mills,
Sash, Door and Blind
Work; Furniture,
Chair Factories; Car,
Railway and Agricul-
tural Works; Buggy,
Carriage and Wagon
Builders; Spoke,
Wheel and Handle
Factories; Pattern
Shops and General
Workers.Send for Catalogue or
State Your Wants.

E. C. ATKINS & CO., Indianapolis, Ind.

MANUFACTURERS OF

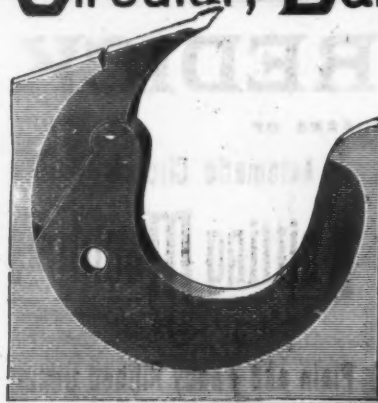
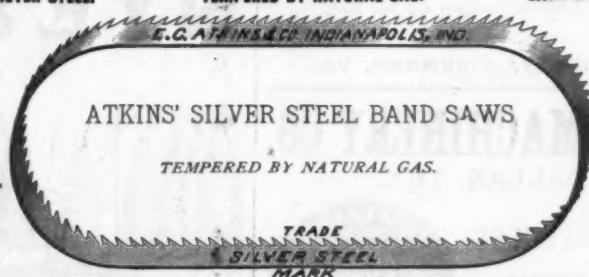
BRANCH HOUSES: Memphis, Tenn.
Minneapolis, Minn.
Chattanooga, Tenn.

Circular, Band, Gang, Drag and Cross-Cut Saws.

MADE FROM SILVER STEEL.

TEMPERED BY NATURAL GAS.

EACH SAW WARRANTED.

Cylinder
Saws
Re-Stepped.

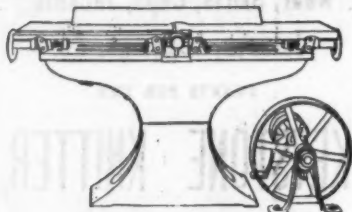
ATKINS' SILVER STEEL BAND SAWS

TEMPERED BY NATURAL GAS.

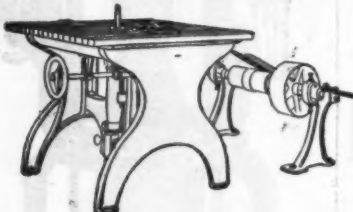
TRADE
SILVER STEEL
MARKRepairing
Promptly
Done by
Skilled
Workmen at
Factory or
Branch
Houses.

ALSO A FULL LINE OF MILL SUPPLIES.

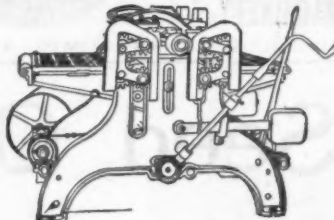
Write for Sawyer's Hand-Book, Saws and Saw Tools, and our Prices.



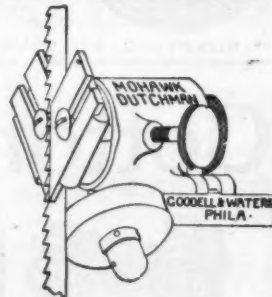
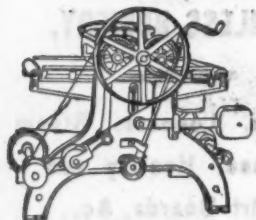
BUZZ PLANER.



UPRIGHT SHAPER



24" SINGLE SURFACER.

The celebrated "MOHAWK
DUTCHMAN"
BAND SAW GUIDE.

FINISHING PLANER.

GOODELL & WATERS,

3002 Chestnut Street,

PHILADELPHIA, PA.

WESTERN BRANCHES:

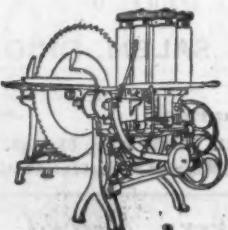
227 W. 12th St., Chicago. 29 Spear Street, San Francisco.

Designers and Builders of
Wood-Working Machinery.

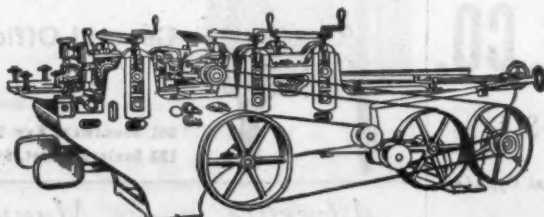
SEND FOR CATALOGUE. Kindly address the office nearest to you.

Acknowledged by all authority
as the best.Send for a copy of
"THE SECRET OF
SUCCESSFUL BAND
SAWING."Every Band Sawyer should
read it.

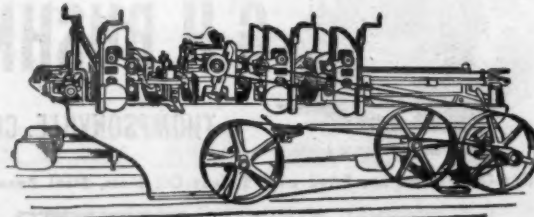
Mailed free upon application.



RESAW.



KEYSTONE RAPID FLOORER.



No. 12 24" PLANER AND MATCHER.

P. PRYIBIL, 512 to 524 W. 41st Street,
NEW YORK CITY,
MANUFACTURER OF SUPERIOR
Wood Working Machinery,
SHAFTING,
PULLEYS,
HANGERS,
Etc.
Write for Catalogue.



HAND SAW.



FEED PLANER.

CORDESMAN, MEYER & CO.
171 & 173 W. SECOND STREET, CINCINNATI, OHIO.

FINE GRADES OF LATEST
Wood-Working Machinery
OF EVERY DESCRIPTION.
Planing Mills, Furniture and Chair
Factories, Carriage, Wagon
and Agricultural Works.
Write for our latest catalogue and price
list. Correspondence solicited.

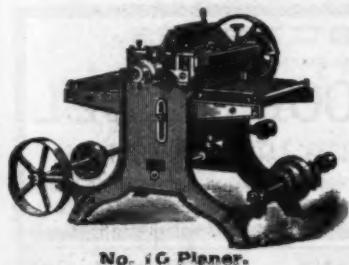


UNIVERSAL WOODWORKER.



NO. 2 BAND SAW.

Woodworking Machinery.
C. B. Rogers & Co., Norwich, Conn.
Planers and Molders.



No. 16 Planer.

THOS. K. CAREY & BRO.
Agents,
Baltimore, Md.

UNITED STATES MACHINE CO.
WILLIAMSPORT, PA.
MANUFACTURERS OF THE LATEST IMPROVED
Wood-Working Machinery
For Saw and Planing Mills, &c.
We Make a Specialty of Saws, Planers and Clamps.
Send for Circulars and Prices.
We Solicit Correspondence.



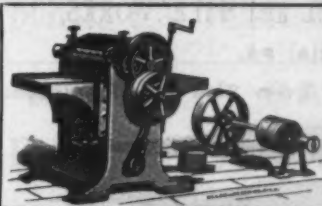
Improved Wood Working Machinery
GREAVES & KLUSMAN,
180 and 182 West Second Street, CINCINNATI, OHIO.
MANUFACTURERS OF
Planers and Matchers,
Pony Planers, Band
Saws, Scroll Saws,
Various Saws, Swing
Cut-Off Saws, Wood
Turners' and Pattern
Makers' Lathes, &c.
It will pay you to write
for prices.




Our Improved Sweepstakes PLANER, Matcher and Moulder
Is Simple, Strong and Durable. Never fails in
Yellow Pine or Hard Lumber.



ROWLEY & HERMAN, Williamsport, Pa., U.S.A.
Price: To plane with top head 24" wide, under head 20" wide & match 12 1/2" wide, wt. 3,500 lbs. \$375
" " " 24" " " 20" " " 12 1/2" " " 2,600 lbs. \$280



**Wood
Working
Machinery**

CATALOGUE
AND PRICES
WILL BE
SENT ON AP-
PLICATION.

WHAT IS SAID OF OUR MACHINERY AT THE NAVY YARD.

We manufacture
Wood Working Ma-
chines of every description.
All our machines are tested before
shipment and guaranteed to give perfect
satisfaction.

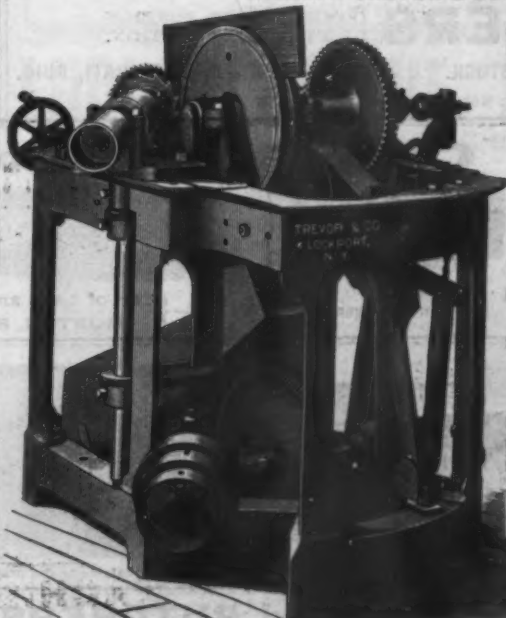
NAVY YARD, KITTERY, ME.
Gentlemen—Your machinery works
admirably.
J. W. BROOK,
Master Joiner.

CORDESMAN MACHINE CO.

26 to 36 Butler St., Cincinnati, O.

TREVOR MFG. CO., Lockport, N. Y.

Successors to TREVOR & CO.



TREVOR PATENT HEADING TURNER.

MANUFACTURERS OF
**Shingle, Heading & Stave
MACHINERY**

AND
**Shingle and Heading
SAWS.**

Heading Sawing Machines,
HEADING TURNERS
HEADING JOINTERS,
Veneer Cutting Machines,
Stave Equalizers,
Stave Cutters,
Shingle Jointers,
Shingle Sawing Machines,
Drag Saw Machines.

HANDLE MACHINERY.
Lathes for turning Handles
for Brooms, Mops, Forks, Hoops,
Axes, Picks, Hammers, Cant
Hooks and for Bal' Bats, Heavy
Sticks, Pike Poles, Spokes, for
If you want Machinery for
Staves, Heading, Shingles or
Veneer Cutting, send for our
catalogue "A." If you want
Handle Machinery, send
for catalogue "B."
Please say where you
saw this advertisement.
Address.

TREVOR MFG. CO.
LOCKPORT, N. Y.

S. A. Woods Machine Co.
MANUFACTURERS OF
PATENT & IMPROVED
WOODWORKING MACHINERY
ESTABLISHED 1854.
PLANING AND
MOULDING
MACHINERY.
A SPECIALTY FOR 35 YEARS.
172 HIGH ST. BOSTON. 91 LIBERTY ST. N.Y. 61 50 CANAL ST. CHICAGO.



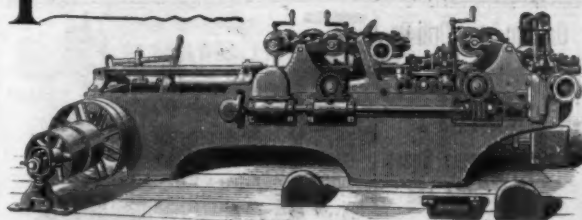
8 Solid Gold Medals
AWARDED
NEW ORLEANS

WORKS AT
SOUTH BOSTON-MASS.

GLEN COVE MACHINE CO., Limited,

Manufacturers of Improved

Planing Mill Machinery,



BACK VIEW OF SCREW-FEED PLANING AND MATCHING MACHINE.

PATENTED.
SCREW FEED
Planing and
Matching Machines
and Moulding
Machines.

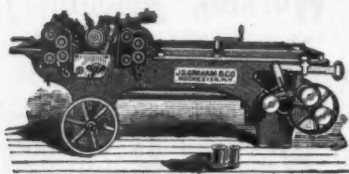
Also the Celebrated
Double Decker,
AND
Glen Cove Special
Flooring Machines.

Office and Works: 24, 26, 28, 30, 32 and 34 CLAY STREET, BROOKLYN, N. Y.

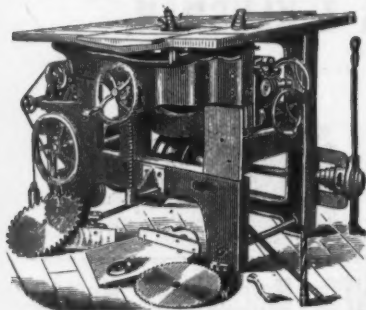
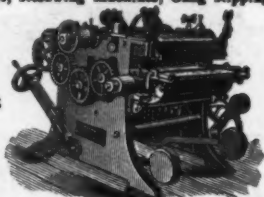
J. S. GRAHAM & CO.

261 LYELL AVENUE, ROCHESTER, N. Y.

Manufacturers of Planers and Matchers, Surfacers, Timber Planers, Resawing Machines, Gang Rippling Machines, Self-Feed Saw Tables, Moulders, Pony Planers, Etc.



SEND FOR
PRICES.



Brandon Variety Woodworker.

This machine is designed and constructed in such a manner as to combine in a simple and compact form all the essential points of a first-class dimension saw, single spindle reversible shaper, and boring, gaining, mortising or routing machine. The arbor is arranged to work at any angle, from horizontal to vertical, with reverse motion, and can be adjusted while running. It is especially adapted to a wide range of work, the changes being quickly made. THE MATERIAL TO BE OPERATED UPON ALWAYS LIES FLAT on the table and the arbor brought into position to do the required work, thus doing away with all toggling up of the material on jacks, &c. All kinds of mortising and routing, &c., is done on this machine, and it is so arranged that the material can be worked above or below on either side of the arbor. This machine is built in three styles. No. 1, A Full Combination. No. 2, As Saw and Shaper. No. 3, as a Finishing Saw. For full particulars and prices address

THE VICTOR MFG. CO., 6 W. FERRY ST., BUFFALO, N. Y.

JACOB J. MOLTZ, WILLIAMSPORT, PA.

MANUFACTURER OF

LATH AND PICKET MILLS,

GANG EDGERS, ENDLESS CHAIN, LOG JACKERS, LOG TURNERS, PULLEYS AND SHAFING.

Capacity of Lath Mill, 60,000 to 90,000 per day of Pine; 40,000 to 60,000 of Hemlock.

Send for Price List and Circular.

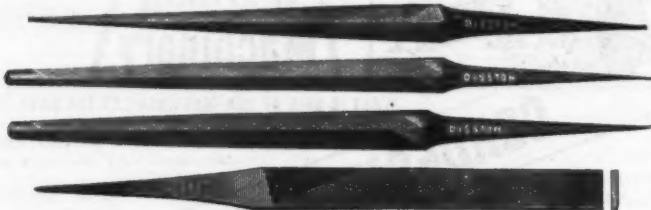
HENRY DISSTON & SONS

INCORPORATED.

KEYSTONE SAW, TOOL, STEEL and FILE WORKS,

PHILADELPHIA, PA.

Manufacturers of SAWS and FILES of Every Kind and Description.



Send for book "The Saw; How to Choose It, and How to Keep It in Order." Mailed Free.

THE E. D. ALBRO CO.

IMPORTERS

OF

MAHOGANY

MANUFACTURERS OF

Hardwood Lumber and VENEERS

DOMESTIC AND FOREIGN OF EVERY DESCRIPTION.

FULL LINE OF SEASONED STOCK.

MILLS, CINCINNATI, OHIO.

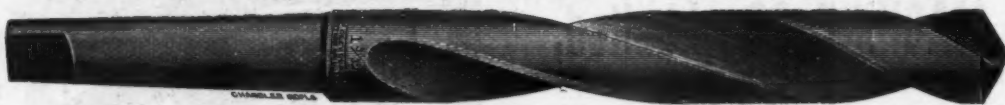
Eastern Branch, 6th and Lewis Sts., E. R., NEW YORK.

Established 1874.

MANUFACTURERS OF

Taper Shank Drills,
Straight Shank Drills,
Blacksmith Drills,
Bitstock Drills,
Straight Fluted Drills,
Machine Bit Drills.

Cleveland Twist Drill Co.



Send for Catalogue.

OFFICES—

Cor. of Lake and Kirtland Sts., Cleveland, O.
MORTON, REED & CO., BALTIMORE.

Write for Discounts.



Endorsed by Practical Mechanics everywhere.

Send for catalogue and prices.

Graham Twist Drill Co.

Detroit, Mich., U.S.A.

Sole Mfrs. of

GRAHAM'S

Patent Grooved Shank

Twist Drills and

Chucks.

Established 1872.

M. L. EDWARDS CO.

SALEM, OHIO.

Makers of

Blacksmiths' and

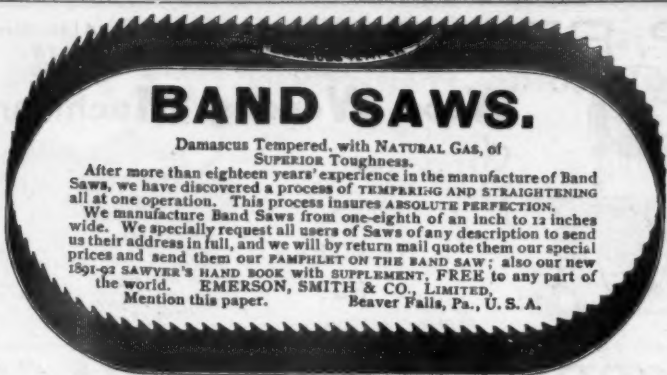
Carriage Makers' Tools,

Butchers' Supplies, &c.

CATALOGUE

FREE

CIRCULAR, GANG



BAND SAWS.

Damascus Tempered, with NATURAL GAS, of SUPERIOR Toughness.

After more than eighteen years' experience in the manufacture of Band Saws, we have discovered a process of TEMPERING AND STRAIGHTENING all at one operation. This process insures ABSOLUTE PERFECTION. We manufacture Band Saws from one-eighth of an inch to 12 inches wide. We specially request all users of Saws of any description to send us their address in full, and we will by return mail quote them our special prices and send them our PAMPHLET ON THE BAND SAW; also our new 1891-92 SAWYER'S HAND BOOK with SUPPLEMENT, FREE to any part of the world. EMERSON, SMITH & CO., LIMITED, Beaver Falls, Pa., U. S. A. Mention this paper.

BAND DRAG SAWS.

TRADE MARK.

DAMASCUS TEMPER.

CIRCULAR SOLID SAWS, STANDARD INSERTED or CHISEL-PLANNER TOOTHED SAWS, CLIPPER and LUMBERMAN'S CLIPPER SAWS are specialties with us. Our HAND-BOOK for SAWYER'S and SUPPLEMENT gives full information, and we will esteem it a favor to be permitted to send them to any reader of this paper.

EMERSON, SMITH & CO., LIMITED, Beaver Falls, Pa.



And the "BARRY" CIRCULAR SAWS
Manufactured by W. B. BARRY SAW & SUPPLY CO. Nos. 124 to 128 S. Penn Street, INDIANAPOLIS, IND.

CHARLES BURGESS,

MANUFACTURER OF ALL GRADES OF

CRUCIBLE TOOL STEEL

Including SELF-HARDENING STEEL for MAILERS', LATHE and PLANNER TOOLS.

Warranted Equal to any Brand Made.

Extra Quality Cast Steel for Reamers and all special tool purposes.

CYCLOPS STEEL WORKS, Titusville, Pa.

THE CINCINNATI TOOL COMPANY, Cincinnati, Ohio.

Car Joiner Clamp.

Sizes 2 1/2 to 10 feet.

Manufacturers of



DRILLS for Wood and Metal, Spoke Shaves, Clamps, Pliers, Saw Sets, &c.

Write for prices and catalogues and mention this paper.

New York Office, 118 Chambers Street



BARNES' UPRIGHT DRILLS

Complete line, ranging from our New Friction Disk Drill, for light work to 42-inch Back Geared Self Feed Drill.

Send for Catalogue and Prices.

BARNES' WATER EMERY TOOL GRINDER

Has no pumps, no valves. No piping required to supply it with water. Always ready for use. Simplest in construction, most efficient in operation. Send for catalogue and prices.



W. F. & JOHN BARNES CO., 221 Ruby Street, Rockford, Ill.

MANUFACTURERS OF

Self-feeding Reamers,

Expanding Reamers,

Shell Reamers,

Stay-bolt Taps,

Taper Reamers.

For SOAP MAKERS and BUTCHERS' MACHINERY, ADDRESS H. Wm. Dupo & Son, Buffalo, N. Y.

THE HARRINGTON & KING

PERFORATING METALS

MANUFACTURERS OF PERFORATED METALS FOR SUGAR HOUSES, DISTILLERIES, AND FERTILIZING WORKS.

COTTON SEED OIL MILLS, RICE MILLS, AND ALL KINDS OF REVOLVING SCREENS, GRIZZLES, AND CRIBS FOR PLACER MINING, STAMP BATTERY SCREENS OF ALL KINDS AND SIZES, MINING SPECIAL ATTENTION GIVEN TO WORK FOR RAILROADS, AND CAR BUILDERS PERFORATED TIN, BRASS, AND ALL SIZES.

MAIN OFFICE AND WORKS
224 & 226 NORTH UNION ST CHICAGO, ILL. U.S.A.
EASTERN OFFICE, No. 284 PEARL STREET, Cor. Bookman, NEW YORK.

THE CANTON STEAM PUMP CO.
CANTON, O.

MANUFACTURERS OF DUPLEX PUMPING MACHINERY FOR BOILER FEEDING AND GENERAL PURPOSES.

NEW DESIGNS AND IMPROVEMENTS.

THE MILLER

WRITE FOR CATALOGUE AND DISCOUNTS.

BUFFALO AUTOMATIC INJECTOR

Construction and operation is such that water supply is always in proportion to supply of steam admitted and can be graded to feed continuously with steam from 20 to 140 pounds. Works perfectly whether lifting or taking supply from city pressure. Operated entirely by one handle, both in stopping and starting and grading supply of steam and water.

Operated entirely by one handle

No Valves required in either steam or suction pipes.

Eagle Ejectors, Duplex Flue Scrapers, Improved Glass Oil Cups and Lubricators, Cylinder Oil Pumps, Compression Grease Cups, &c. Send for catalogue. Mention this paper.

SHERWOOD MFG. CO., Buffalo, N. Y.

PENBERTHY AUTOMATIC INJECTOR

GUARANTEED EFFICIENCY 99 PERCENT
30 DAYS TRIAL - SEND FOR PAMPHLET.

NEW YORK DEPOT
DONEGAN & SWIFT
MANUFACTURED BY
PENBERTHY INJECTOR CO.
DETROIT, MICH.

NATIONAL TUBE WORKS CO.
160 Broadway, New York.

MANUFACTURERS OF THE DODGE

Automatic Injector.

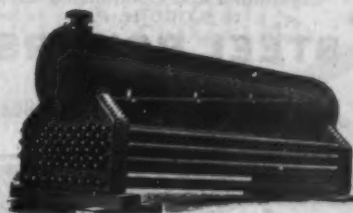
The Simplest and Most Perfect Boiler Feeder Made.

HAS PRACTICALLY BUT ONE INTERIOR PART. Nothing to cut or wear out. IT IS SIMPLICITY AND PERFECTION.

No skill required to operate it. Write for particulars.

SMITH-COURTNEY CO., Richmond, Va., sales agents for Virginia, North and South Carolina and Georgia; C. F. HAMBLIN, St. Augustine, Fla., sales agent for Florida.

HEINE SAFETY BOILER CO.



PATENT Safety Water-Tube Steam Boilers.

ECONOMY IN FUEL AND SPACE.

FREEDOM FROM SCALING. POSITIVE CIRCULATION.

Equally adapted for Power or Heating Purposes, for Clear or Muddy Water, and any kind of Fuel. Send for Circular J to

HEINE SAFETY BOILER CO., 706, 707 and 708 ST. LOUIS, MO.
Bank of Commerce Building.

OR TO OUR AGENTS:

Ridson Iron Works, San Francisco, Cal. Van Zile, McCormack & Co., Albany, N. Y.
Stearns, Roger & Co., 3 Duff Block, Denver, Col. Jas. H. Harris, 32 Madison Street, Chicago, Ill.
Jas. K. Rugg & Co., 107 W. Second St., L. Meisner, 34 St. Charles St., New Orleans, La.
Cincinnati, O. R. M. Huston, 45 Broadway, New York.
T. C. Gooch, 448 W. Main St., Louisville, Ky. English, Morse & Co., Kansas City, Mo.
Seeger & Guernsey Co., City of Mexico, Mex.

CASEY & HEDGES BOILER CO.

MANUFACTURERS OF

BOILERS,

STACKS, CUPOLAS, HEATERS and BLAST FURNACE WORK.

Carry in stock BOILERS AND ENGINES, all sizes, also Second-Hand Boilers and Engines, 200 tons of Plate and Sheet Iron, 30,000 ft. of Boiler Tubes, Injectors, Inspirators and Boiler Fittings of all kinds.

When you want Boilers wire us—our expense for prices.



ENTERPRISE BOILER COMPANY, YOUNGSTOWN, OHIO.

MANUFACTURERS OF

Boilers and Tanks, Sheet Iron and Plate Work OF ALL DESCRIPTIONS.

LOUIS W. GAY, 34 and 36 Washington Street, BUFFALO, N. Y.

Engineers' and Plumbers' Supplies.

Wrought Iron Pipe, Brass Goods, Cast and Malleable Fittings, Boiler Tubes, Rivets, Bar Iron, Cotton, Rubber and Leather Belting. Agents for Getta Percha & Rubber Mfg. Co., Scott's Patent Gate Valve, Danvers Tool Steel, Spence Hot-Water Heater. Write for Prices.

EXHAUST STEAM HEATING

By the WILLIAMES VACUUM SYSTEM, without back pressure upon the Engine guaranteed.

Patent No. 256,089, dated April 4, 1882, sustained in two suits in the United States Circuit Court.

The System has been adopted by over 300 of the largest buildings, including Mills, Churches and Office Buildings, Schools, Asylums, Theatres, Hotels and Electric Light Companies, in this Country.

ADVANTAGES GUARANTEED.

Removal of all back pressure, thereby increasing power of engine and saving of over 25 per cent. in fuel, compared with the back pressure system of forcing the steam through the heating pipes. The prominent feature consists in a given quantity of exhaust steam being circulated and uniformly distributed through double the amount of heating pipes that could be accomplished by the same quantity of exhaust steam when forced into the heating system by pressure. Send for descriptive catalogue with convincing proofs and references.

WARREN WEBSTER & CO., Main Office and Works, 491 N. 3d St., Philadelphia.

Patentees, Owners and Manufacturers of the

"WEBSTER" VACUUM EXHAUST STEAM ENGINEERING FEED WATER AND PURIFIER.

Send for Illustrated Catalogue.

LUDLOW VALVE MFG. CO.

Office and Works: 938 to 954 River St., and 67 to 83 Vall Ave., Troy, N. Y.

VALVES

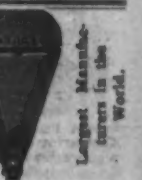
Double and Single Gate, 1/2 inch to 48 inch, outside and inside Serris, Indicators, etc., for Oil, Water, Steam, OIL. SEND FOR CIRCULAR.



Also Fire Hydrants, Yard and Wash Hydrants, Check and Foot Valves.

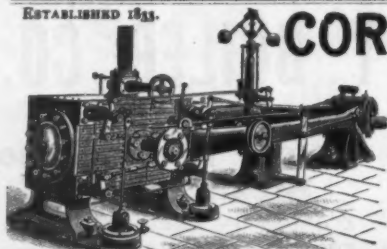


Bullock Bellows Co., Cleveland, Ohio.



Longest Manufacturers in the World.

ESTABLISHED 1855.



CORLISS ENGINES

HIGH PRESSURE.

Compound and Condensing 25 to 3,000 H. P.

STEEL BOILERS

COMPLETE STEAM PLANTS A SPECIALTY.

C. & S. COOPER & CO., Mt. Vernon, Ohio.
W. R. BURGESS MACHINERY CO., Greensboro, N. C., Southern Agents.

VALLEY AUTOMATIC ENGINES

HIGHEST EFFICIENCY
SUPERIOR CONSTRUCTION.

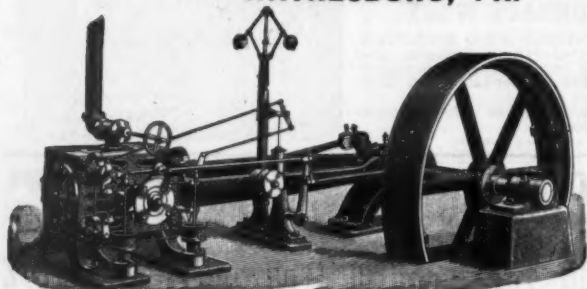
CLOSEST ECONOMY
— OVER —
75,000 HORSE POWER
— IN —
OPERATION

VALLEY IRON WORKS WILLIAMSPORT, PENNA. U.S.A.

ECLIPSE CORLISS ENGINES.

Frick Company, Engineers, Builders,

WAYNESBORO, PA.

40 to 1,000 H. P.
Made.

Condensing, Non-Condensing & Compound.

Send for Corliss Circular.

Ice-Making and Refrigerating Machinery.

Send for Ice-Machine Circular.

Special Automatic Electric Light Engines, Steam Boilers, Traction and Portable Engines, Saw Mills. Send for our General Catalogue.

FOR THE LOWEST-PRICED FIRST-CLASS ENGINES & BOILERS

ADDRESS

GEO. W. TIFFT, SONS & CO.
BUFFALO, N. Y.

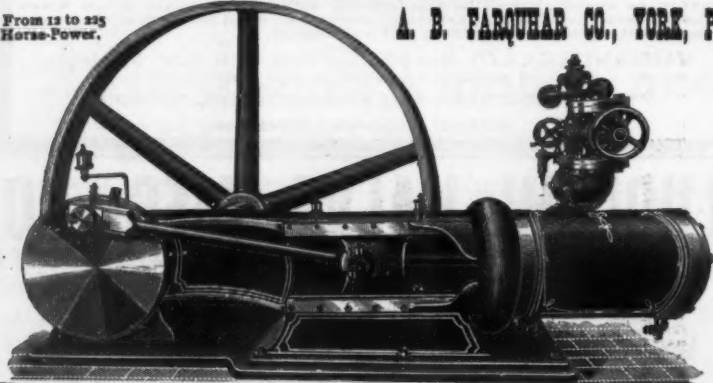
5 to 500 H. P. Special Stock Sizes 5 to 50 H. P., both Stationary and Semi-Portable.

A few good Second-Hand Engines and Boilers are for sale at an astonishingly low figure. Must be sold to make room for stock. Correspondence solicited. Mention this paper.

CORLISS STYLE GIRDER FRAME ENGINES, EXTRA HEAVY, Built by

A. B. FARQUHAR CO., YORK, PA.

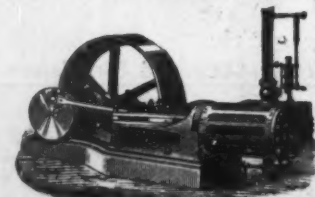
From 12 to 225 Horse-Power.



Portable Engines, Boilers and Saw Mills.

The ALEX. K. RARIG CO.

BUENA VISTA, VA.

MANUFACTURERS OF
Blast Furnace Plants,
AUTOMATIC CUT-OFF ENGINES,
HOISTING ENGINES,
Boilers, Boiler Plate Punches,
ROLLS AND SHEARS,
Clay-Working Machinery,
Steam Sewer Pipe Presses.

Socket Pipe, Tile and Fire-Proof Dies, Wet and Dry Pans for Grinding and Tempering Clay for Sewer Pipe, Terra Cotta, Brick and Tile. We furnish complete outfits for Sewer Pipe and Brick Plants. Write for catalogue. Correspondence solicited. Mention this paper.

The Porter-Hamilton Engine.

FOR LARGE POWERS.

The Heaviest Engine in America.

THE HAMILTON BLOWING ENGINE

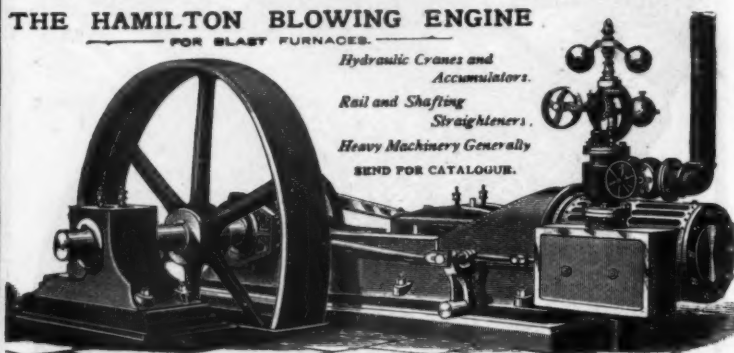
FOR BLAST FURNACES.

Hydraulic Cranes and Accumulators.

Rail and Shafting Straighteners.

Heavy Machinery Generally.

SEND FOR CATALOGUE.



WILLIAM TOD & CO.

YOUNGSTOWN, OHIO.

STEAM ENGINES AND BOILERS

If you want the very best engine there is made, go direct to the builders, 30 Cortlandt street, New York, and get a NEW YORK SAFETY STEAM POWER CO. VERTICAL ENGINE for 2 to 20 horse power, or a HORIZONTAL AUTOMATIC ENGINE for 20 to 250 horse power. These Engines have the fewest possible wearing parts, all of which are in sight and easily accessible, which is what every intelligent engineer wants.

8,000 ENGINES IN USE

ENGINES AND BOILERS Erected and Connected ready to run, also Shafting, Pulleys, Belting, Etc.

Send for price list.

N. Y. SAFETY STEAM POWER CO.

Also, 64 South Canal St., Chicago.

30 Cortlandt Street, New York.

PHILADELPHIA CORLISS ENGINES.

Catalogues Mailed on Application.

Non-Condensing.
Condensing.

Triple and Quadruple Expansion.

Horizontal or Vertical.

Superior Design, Workmanship and Finish.

Best Material. HIGHEST EFFICIENCY GUARANTEED.

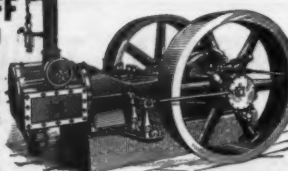
PHILADELPHIA ENGINEERING WORKS LTD.
MIFFLIN ST. EAST OF FRONT ST. PHILADELPHIA, PA.

BALL ENGINE COMPANY, ERIE, PA.

AUTOMATIC, CUT-OFF ENGINE

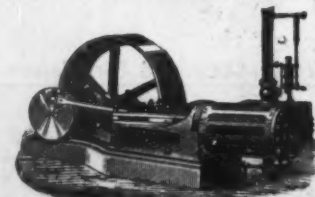
with New Improvements
Unequaled Regulation
Highest Economy, Durability
Smooth & Quiet Running

The BEST Engine for Electric LIGHTING, Electric RAILWAYS, Electric MINING, Electric WELDING and General Manufacturing Purposes.

Simple.
Cross Compound.
Triple Expansion.
Tandem Compound.

The ALEX. K. RARIG CO.

BUENA VISTA, VA.

MANUFACTURERS OF
Blast Furnace Plants,
AUTOMATIC CUT-OFF ENGINES,
HOISTING ENGINES,
Boilers, Boiler Plate Punches,
ROLLS AND SHEARS,
Clay-Working Machinery,
Steam Sewer Pipe Presses.

Socket Pipe, Tile and Fire-Proof Dies, Wet and Dry Pans for Grinding and Tempering Clay for Sewer Pipe, Terra Cotta, Brick and Tile. We furnish complete outfits for Sewer Pipe and Brick Plants. Write for catalogue. Correspondence solicited. Mention this paper.

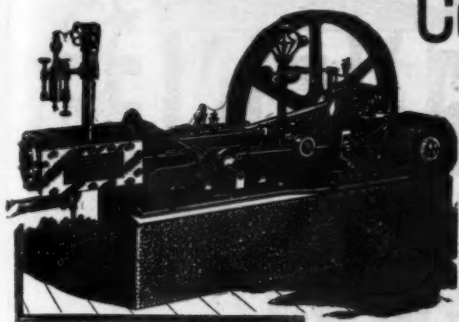
SKINNER ENGINE CO., ERIE, PA.

OVER 4500 IN USE.

MANUFACTURERS OF
AUTOMATIC, STATIONARY & PORTABLE

ENGINES and BOILERS

MORTON, REED & CO. Agents, Baltimore, Md.
SEND FOR CATALOGUE.

336, 338, 340, 342
NORTH ST.**The WARFIELD MANUFACTURING CO. BALTIMORE, MD.**

THE WARFIELD-PILLINGS AUTOMATIC ENGINE.

Class A.—The Warfield-Pillings Automatic Engine. A high-grade Engine, (for high or medium speed,) for electric light and other purposes.
Class B.—The Warfield Throttling Governor Engine—Horizontal and Vertical.

Complete Steam Plants, COMPLETE ELECTRIC-LIGHT PLANTS

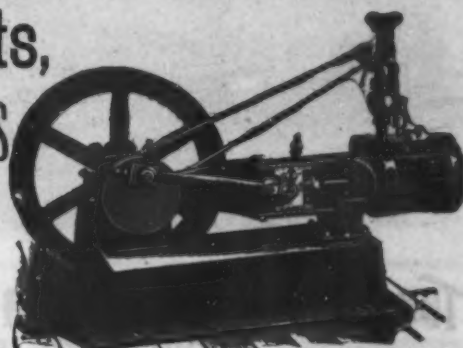
For Cities, Towns, &c.

GENERAL MACHINE WORK.

Machinery Designed and Constructed for
Special Purposes.

OUR MACHINERY IS CLASSED AND CATALOGUED AS FOLLOWS:

Class C.—Steam Boilers—Stationary Tubular, Upright Tubular.
Class D.—Shafting, Hangers, Pulleys, Couplings, &c.
Class E.—Fruit, Vegetable and Oyster Packers' Machinery—most complete line on the market.



THROTTLING GOVERNOR ENGINE, HORIZONTAL.

Class F.—Can-Making and Sheet-Metal Machinery.
Class G.—The Warfield-Pillings Patent Water Meter, Culling, Column and Exhaust Fans, complete Ventilating Apparatus, Patent Electric Meters.

Any of the above Catalogues mailed upon application.

TALBOTT & SONS, RICHMOND, VA.

MANUFACTURERS OF

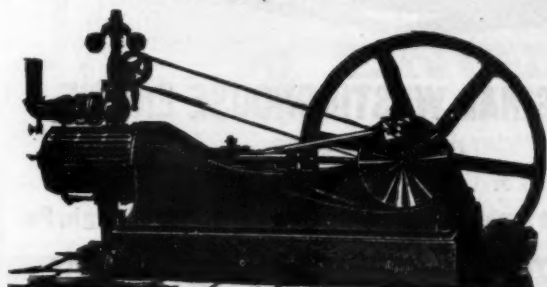
Engines and Boilers,

SAW, CORN AND WHEAT MILLS,

ROPE FEED for SAW MILLS, TIMBER GUAGES, graduated by 1-16 of an inch. Shafting, Hangers and Pulleys,

Cotton-Seed Oil Mill Machinery

MODERN COTTON GINNERIES.



BRANCH OFFICES:

MACON, GA.

CHARLOTTE, N. C.

ESTIMATES AND CONTRACTS MADE FOR COMPLETE OUTFITS

Embracing the Latest and Best Improvement.

IDE and IDEAL AUTOMATIC STEAM ENGINES

Simple, Tandem and Cross-Compound.

MANUFACTURED BY

HARRISBURG FOUNDRY & MACHINE WORKS,

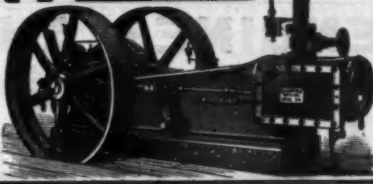
HARRISBURG, PA.

Catalogues and prices upon application.

THE WOODBURY ENGINE

SELF-CONTAINED, AUTOMATIC
HIGH SPEED STEAM ENGINE
for Electric Lighting and
Street Railway Service,
WITH BOILER PLANT COMPLETE.

Catalogue sent on application.
STEARNS MFC. CO. ERIE, PA.
 BRANCH: Philadelphia, 942 Drexel Bldg.
 OFFICES: San Francisco, 29 & 31 Spear St.



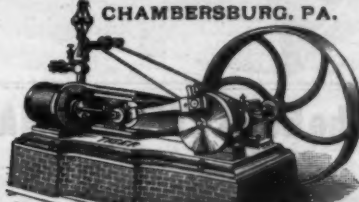
THE TAYLOR ENGINE CO.

SEND FOR CATALOGUE
AND PRICES.

CHAMBERSBURG, PA.



15 TO 300 HORSE-POWER.



2 TO 200 HORSE-POWER.

Sole makers of the TAYLOR AUTOMATIC ENGINES, horizontal and vertical, which are unexcelled for Electric Light, Street Railway and general power service. Also builders of the "TIGER" and other Plain Slide Valve Engines, portable, vertical and stationary, and BOILERS of all styles.

ENGINES & BOILERS UPRIGHT & HORIZONTAL.

3 to 26 Horse Power, in a Variety of Styles.

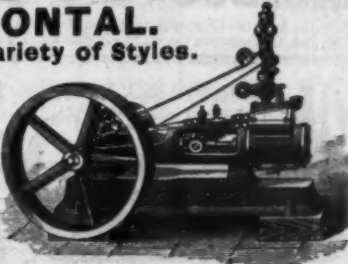
STRONGLY BUILT on BEST PRINCIPLES
for SMOOTH and ECONOMICAL WORK.

Over 4000 in Use.

Write for FREE PAMPHLET and state
your wants to

THE JAMES LEFFEL & CO.

SPRINGFIELD, OHIO, or NEW YORK CITY.



RACINE AUTOMATIC High-Speed Engine.



ADAPTED FOR

Electric-Light Plants

AND OTHER HIGH DUTY.

Engines carried in stock from one horse-power up to 100 horse-power.

Immediate Shipment a Specialty.

ADDRESS

RACINE HARDWARE MANUFACTURING CO.

RACINE, WIS.

IMPORTANT NOTICE.

THE NORTH AMERICAN METALINE CO. of New York City, sole manufacturers of the Metalined or Oilless Bearing for Loose Pulleys, &c., having erected a commodious factory building on West Avenue, cor. West Third Street, Long Island City, N. Y., have removed thereto their main office and factory. Send for Loose Pulley Circular No. 2.

TRIPOD BOILER

Three
Points of
Superiority
Guaranteed:
Safety,
Economy,
Low First Cost

Repeated tests prove that it is absolutely Non-Explosive and the most Durable ever made. Strong testimonials from hundreds of users, in all parts of the country.

Sizes 10 to 1,000 H. P.

For full information address,

HAZELTON TRIPOD BOILER CO.

800 Monon Block., CHICAGO, ILL.

Subscribe to the MANUFACTURERS' RECORD.

The Tudor Boiler Manufacturing Co. Steam Boiler & Tank Makers

OFFICE, 242 E. Pearl St. (opp. Philab's, Cincinnati & St. Louis Ry.), CINCINNATI, O.
SECOND-HAND BOILERS ALWAYS ON HAND.

STATIONARY

MARINE

Eagle Boiler Works

DAN SHEA & CO., Prop's.

Boiler Makers and Sheet-Iron Workers.

REPAIRING PROMPTLY DONE.

MEMPHIS, TENN.



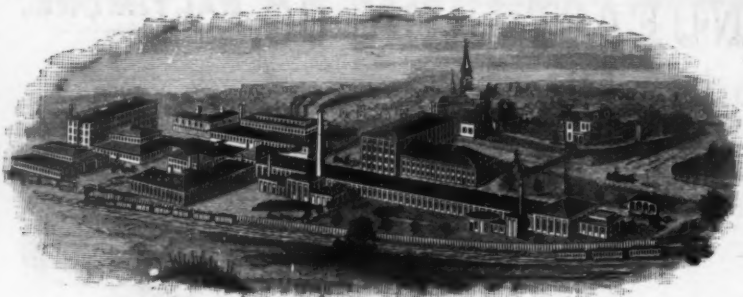
25 to 25 JEFFERSON STREET.

Engines and Boilers

From 1 to 500 horse-power; Portable and Stationary, Horizontal and Vertical. Boilers of plain tubular type, locomotive fire-box pattern, vertical and two-flue, steel or iron, as desired. Engines, Plain Slide Valve or Automatic Cut-Off. Send for catalogue, giving exact requirements, that you may obtain our estimate. Freight paid your station if desired.

W. E. DREW, Agent.

S. C. FORSAITH MACHINE CO. Machinery and General Machinery Dealers, Manchester, N. H.



The Corliss Steam Engine Co.

PROVIDENCE, R. I.

Incorporated June, 1856; Established by

GEORGE H. CORLISS,

INVENTOR OF THE CELEBRATED

"CORLISS ENGINE."

DESIGNER & BUILDER OF THE FAMOUS

"CENTENNIAL ENGINE,"

Exhibited at the Philadelphia Exposition, 1876.

THIS COMPANY builds these Engines in different styles, i. e., condensing, non-condensing, single or in pairs, compound and triple expansion, in sizes from 50 to 2,000 horse-power each Engine embodying the latest improvements of Mr. Corliss.

These works are fully equipped with heavy special tools of Mr. Corliss' invention, for the manufacture of these perfected Engines. This guarantees a degree of precision in workmanship and consequent interchangeability of parts not hitherto attempted.

These Engines are in general and successful use for Manufacturing and Electric Lighting and all other purposes requiring close regulation and economy in fuel.

THE PUBLIC will understand that we have no relations with American or European builders of so-called "IMPROVED CORLISS ENGINES," and that the FINAL AND PERFECTED ENGINE OF MR. GEORGE H. CORLISS is to be obtained in America exclusively at our works.

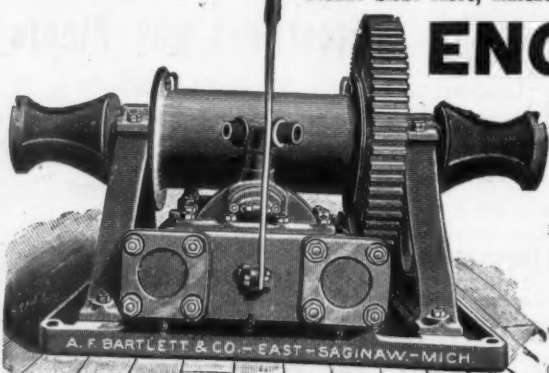
A. F. BARTLETT & CO.

SAGINAW, EAST SIDE, MICHIGAN,

Manufacturers of

Corliss Slide Valve, Marine and Steam Feed

ENGINES



Saw Mill and Salt Works
MACHINERY.

SPECIALTIES

EDGING GRINDER

Indispensable for Saw Mills
Saving Labor & Money.

DECK HOIST

For Loading any Msd. or Lumber.

Write for Catalogue, Prices
and References.
Correspondence Solicited.

REYNOLDS · CORLISS · ENGINE.

Built of any required size, from 30 to 2,000 horse power and upwards. Horizontal or upright, to suit any location.

Non-Condensing, Condensing, &

Compound, Triple Expansion, or

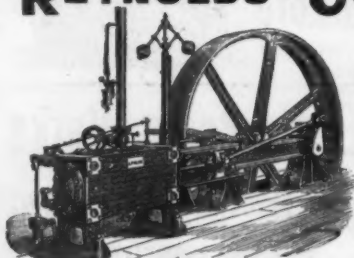
QUADRUPLE EXPANSION.

Write for Catalogue and list of users.

The EDWARD P. ALLIS CO.

Reliance Works.

MILWAUKEE, WIS.



Chicago Office, 43 S. Jefferson St.

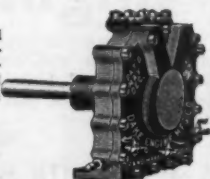
Dake Double Reciprocating Square Piston Engine.

Dake's Patent.

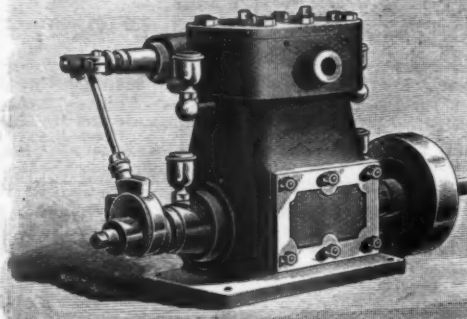
NOT A ROTARY, but a double reciprocating high speed Engine, and occupying less space than a rotary Engine of half its power. Particularly adapted to running ventilating fans, blowers, dynamos, and centrifugal pumps, or any machinery requiring direct attached Engine, at either high or low speeds. Economical of steam. Write for descriptive circular and testimonials.

DAKE ENGINE MANUFACTURING CO.

GRAND HAVEN, MICH.



WESTINGHOUSE ENGINES



THE ORIGINAL WESTINGHOUSE ENGINE,

BUILT A. D. 1880.

SIZE 3x3.

1,000 REVOLUTIONS.

Now preserved in the Offices of the Company, Pittsburgh, Pa.

THE WESTINGHOUSE MACHINE COMPANY.

PITTSBURGH, PENNA. U.S. OF A.

BASS FOUNDRY AND MACHINE WORKS.

FT. WAYNE
IND.

CORLISS ENGINES.

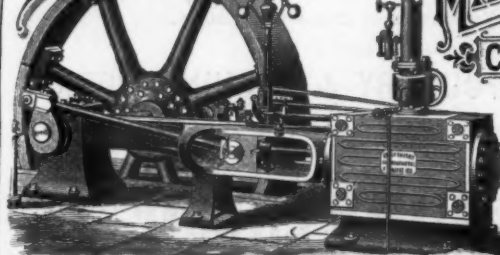
Compound, Non-Condensing, and

CONDENSING

30 H.P. TO 2000 H.P.

BOILERS & COMPLETE

STEAM POWER OUTFITS.



ENGINES AND BOILERS

From 2 to 400 H. P.

The Strongest, Most Compact and Best
Built Outfits on the Market.

**Woodworking & Ironworking
Machines a Specialty.**

Send for Catalogue B.

THE GLOBE MACHINE CO.

35 BROADWAY, NEW YORK.

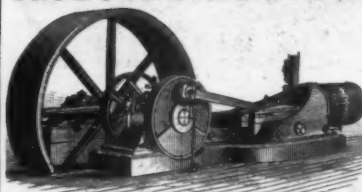


The BUCKEYE AUTOMATIC CUT-OFF ENGINES

SLOW SPEED, MEDIUM SPEED,
AND HIGH-SPEED ENGINES.

Simple, Compound and Triple Expansion
Engines, High-Pressure Boilers.

Complete Steam Power Plants of Highest
Attainable Efficiency.



Address **BUCKEYE ENGINE CO., Salem, Ohio.**

Or Sales Agents—ROBINSON CARY Co., St. Paul, Minn.; N. W. ROBINSON, 97 Washington St., Chicago, Ill.; JAS. CARRINGTON, 635 1st St., Louisville, Ky.; CHATTANOOGA SAW WORKS, Chattanooga, Tenn.



STEAM ENGINES

Adapted to Heavy, Continuous work.

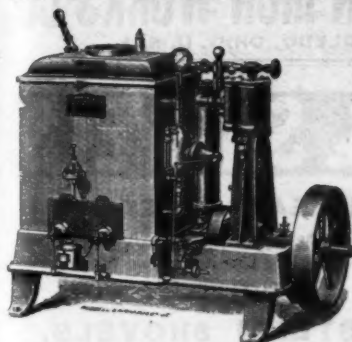
Every Engine Tested Under Full Load.

Suitable **BOILERS** on hand for im-

mediate delivery.

Send for Descriptive Circulars. Address

CHANDLER & TAYLOR CO. INDIANAPOLIS IND.

NO SKILLED ENGINEER.

— THE —
Shipman Automatic Steam Engine,
 Petroleum, Kerosene & Natural Gas Fuel.

1, 2, 4, 6 & 8 Horse Power.

STATIONARY and MARINE.

The most reliable, efficient and satisfactory power for Creameries, Elevating Water, Cutting Ensilage and Feed, and all small manufacturing purposes.

Send 5 cents for Catalogue.

SHIPMAN ENGINE CO.

306 Summer Street, Boston, Mass.

DO YOU WANT POWER?

We make
COMPOUND and SINGLE CYLINDER ENGINES
 requiring a minimum amount of space,
 attention and repairs.

ENGINES

Suitable for any class of work. Close regulation guaranteed. Large Bearings. Small Friction. No packing. All joints ground.

Compound, Reversible and Automatic.

Estimates for complete Plants furnished on application.

THE TRIUMPH COMPOUND ENGINE CO. { 211-217 } CINCINNATI, O.
 ENGINEERS AND MACHINISTS. { W. SECOND ST. } U. S. A.

ELECTRO VAPOR ENGINE

GAS OR GASOLINE FOR FUEL.

NO FIRE. NO BOILER. NO DANGER. NO ENGINEER.

Run by an Electric Spark from Small Battery.

YOU TURN THE SWITCH, ENGINE DOES THE REST

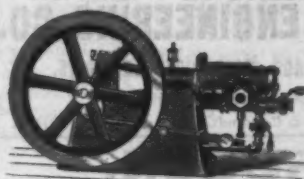
Regan Vapor Engines from one-half to ten horse-power. Regan Vapor Pumping Outfits, capacity 350 to 10,000 gallons.

THOMAS KANE & CO.

187 and 139 Wabash Avenue, Chicago.

JAMES & CO., Chattanooga, Tenn., Agents.

Catalogue on application.

**THE J. C. McNEIL CO.**

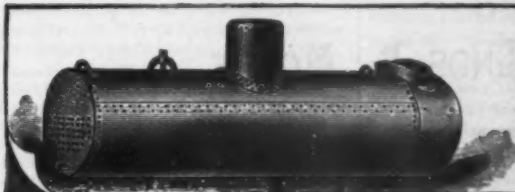
BUILDERS OF

Standpipes, Boilers & Tanks,

OF EVERY DESCRIPTION.

Write for Prices.

AKRON, OHIO.

**BOILERS**

With Rivet Holes drilled after Plates are bent and in position, Tanks and Sheet Iron Work, Engines, Cotton Gins and Presses, Machinery for Fertilizer Works and Phosphate Washers, &c.

VALK & MURDOCH IRON WORKS,
 CHARLESTON, S. C.

STRUTHERS, WELLS & CO.

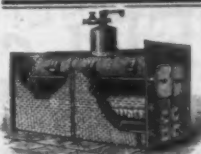
MANUFACTURERS OF

Engines & Boilers

Shafting, Pulleys, Hangers,
 Castings, Etc.

Full Tannery Outfits.

WARREN, PA.



FIRST-CLASS BOILERS at prices that defy competition. CORLISS, Automatic and Plain Slide Valve Engines HEATING, Ventilating and Automatic Sprinkler Outfits for Cotton Mills, etc. Ask for catalogue and estimates.

W. R. BURGESS MACHINERY CO.,

GREENSBORO, N. C.

SEND FOR THIS BOOK
 FREE ON APPLICATION.

BABCOCK & WILCOX CO.

30 CORTLANDT ST. N.Y.
 21 BOWELL ST.
 GLASGOW, SCOTLAND.

STEAM BOILERS

MANUFACTURERS IN UNITED STATES, SCOTLAND, FRANCE, GERMANY & AUSTRIA.

AWARDED THE GRAND PRIZE AT LATE PARIS EXPOSITION.

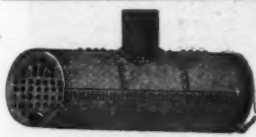
THE RAVENNA BOILER WORKS,

MANUFACTURERS OF ALL KINDS OF

Steam Boilers and Tanks,

Still and Agitators, Plate and Sheet Iron Work of Every Description.

RAVENNA, OHIO.



Write for Prices.

The GRANDALL PACKING CO.

MAIN OFFICE AND WORKS: PALMYRA, NEW YORK.

OTHER OFFICE: { New York, 136 Liberty Street.
 Chicago, 28 S. Canal Street.

Our Improved Packings for Steam, Water and Ammonia OUTLAST ALL OTHERS, because the life and elasticity of the rubber have not been impaired by the chemical action of boiling oil.

We Hold the Patent On These Packings.

Beware of Infringements and Cheap Imitations.

**WRIGHT & ADAMS CO.,**

No. 51 FRONT ST.,
 QUINCY, ILL.

BUILDERS OF HOISTING ENGINES, CAGES,
 TIPPLES, MINE CARS, Sheave
 Wheels, Screen Bars, Chilled Car Wheels, Box Irons and Axles.

WINDING ENGINES for all kinds of Haulage.

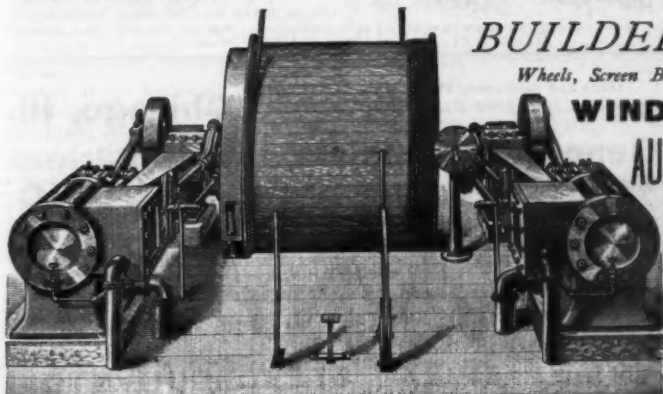
AUTOMATIC and THROTTLING ENGINES

We Furnish

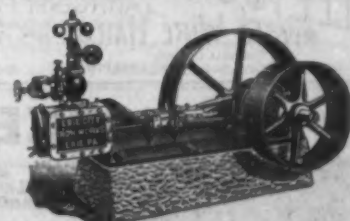
**BOILERS, PUMPS, REVOLVING SCREENS,
 VENTILATING FANS**

and all kinds of Equipment for Mines; Complete Power Plants for Mills, Elevators, Cotton Gins and general purposes.

ESTIMATES AND CATALOGUES furnished to parties contemplating purchase.



BRIDGECITY IRON WORKS.



Boilers, Engines and Saw Mills, Tobacco Machinery, Improved Greene Engine, Otto Silent Gas Engines.

H. P. EDMOND,

1445 East Main Street, RICHMOND, VA.

Subscribe to the MANUFACTURERS' RECORD.

THE BEST

Dredges and Shovels

For Coal, Iron and Phosphate Mining,
Railroad and Contractors' Use,
Irrigation, Levee and Harbor Work.

Correspond with the

VULCAN IRON WORKS CO.

TOLEDO, OHIO, U. S. A.

Wm. S. TURNER, Pres. GEO. A. BILL, V.-Pres. J. LESTER WOODBRIDGE, Secty. & Treas.

WOODBIDGE & TURNER ENGINEERING CO.

Consulting and Constructing Electrical and Mechanical Engineers.

Complete Equipment of Electric Railways, Steam and Electric Plants.

47 TIMES BUILDING, Telephone Call, 1009 Cortlandt. NEW YORK.

S. W. FRESCOLN,

ENGINEER, AND CONTRACTOR,
WORLD BUILDING, NEW YORK.

DESIGNS AND BUILDS COMPLETE

Bridges, Iron Structures, Water Works, Sewerage and Street Work, Blast
Furnace and Steel Plants; Steam, Electric and Cable Ry's.

BONDS NEGOTIATED. COMPANIES ORGANIZED. ESTIMATES FREE

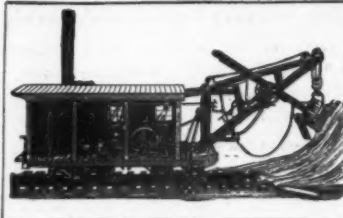
ENOS L. MOORE.

• Engineer • and • Contractor, •

Grand Rivers, Ky.

BLAST FURNACE PLANTS
AND
STRUCTURAL IRON WORK

DREDGES & SHOVELS



STEAM DREDGES,
For Drainage and Irrigation,
Filling Land, Levee Work,
Harbor Work, Etc.

STEAM SHOVELS,
For Railroads, Contract Work,
Stripping Coal and Ore,
Brickyards, Highways, Etc.

Bucyrus Steam Shovel & Dredge Co.

BUCYRUS, OHIO.

THE COREY CAR & MFG. CO.

Manufacturers of Every Description of

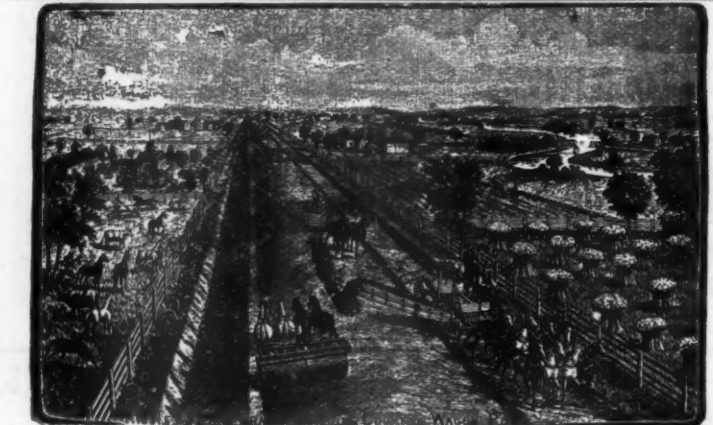
Dumping and Mining Cars

IN WOOD, IRON AND STEEL.

Especially Adapted to PHOSPHATE DEVELOPMENT.

PORTABLE TRACK AND SWITCHES.

55 Fifth Avenue, CHICAGO, ILL.



NEW ERA GRADER.

For building Country Roads will grade 1 mile of road in 3 days, with 6 teams and 3 men, at an expense for labor not exceeding 15 cents per rod. In Railway grading, or Ditch building, guaranteed capable of placing in embankment 1,000 to 1,500 cubic yards of earth in 10 hours or loading 60 to 80 wagons in same time.

For catalogue and information, address

F. C. AUSTIN MANUFACTURING CO., CHICAGO, ILL.

THE WEIR FROG CO.
CINCINNATI, O.
FRED. WEIR, PRES.

SOLE MANUFACTURERS OF

FRED. G. WEIR'S

IMPROVED RIGID & SPRING FROGS, CROSSINGS

SINGLE & THREE THROW SPLIT SWITCHES.

FIXED & AUTOMATIC SWITCH STANDS, STEEL

DIE FORMED RAIL BRACES, SWITCH FIXTURES, ETC.

CABLE & ELECTRIC

TRACK WORK

FROGS, SWITCHES,

CROSSINGS, CURVES

RAIL CHAIRS

ETC.

HE WHO TOOTETH NOT HIS OWN HORN

THE SAME HIS HORN SHALL NOT BE TOOTED.

THEREFORE WE TOOT

THE CHAMPION STEEL DIRT BARROW

Is the best and cheapest.

LET US PROVE IT.

CLEVELAND WHEELBARROW & MFG. CO., Cleveland, O., Sole Manuf'rs,
or THE SOUTHERN EQUIPMENT CO., Chattanooga, Tenn., Southern Agents.

PENNSYLVANIA STEEL COMPANY.

RAILS OF ALL SIZES & SHAPES.

STEEL SPLICES & FASTENINGS.

BILLETS, SLABS & BLOOMS FOR BOILER

RIVETS, WIRE, NAILS, AND VARIOUS PURPOSES.

TANK & SHIP PLATE.

WORKS AT STEELTON, PA.

RAILROAD FROGS AND CROSSINGS.

SWITCHES, SWITCH FIXTURES & C&C.

FOR TRACKS OF ALL SORTS, IN RAILROADS, STREET RAILWAYS, MINES, QUARRIES, MILLS, FACTORIES, & WORKS.

BRIDGES, ROOFS, VIADUCTS & BUILDINGS.

ANGLES & BARS.

GENERAL OFFICE: 908 South Fourth Street, PHILADELPHIA.

NEW YORK SALES OFFICE: No. 2 Wall Street (corner Broadway.)

BOSTON SALES OFFICE: 70 Kilby Street (Mason Building.)

SUPERINTENDENT'S OFFICE: STEELTON, PA.

RAILWAY EQUIPMENT AND TRACK MATERIAL.

New and Second Hand; for CASH or on EASY TERMS on the CAR TRUST PLAN.

Engines, Boilers, Woodworking Machinery, FACTORY and MILL SUPPLIES.

J. ED. MORRIS,

44½ Marietta Street, Atlanta, Ga.
Contracts taken for Surveying, Constructing and Equipping Logging, Electric and Dummy Lines, and Water Works Plants.

WEBSTER MFG. CO.,

SUCCESSORS TO WEBSTER & COMSTOCK MFG. CO.

"STEEL PLATE" FRICTION CLUTCHES, Shafts, Pulleys, Etc.

THE POPULAR "SHELDON"
Compound Lever Pinch-Bar.



Office and Salesroom, 195 S. CANAL STREET,
Works, 1075-1096 W. FIFTEENTH STREET,

Chicago, Ill.

DEALERS IN COTTON, RUBBER and LEATHER
Coker-Metcalf Power Grain Shovel. **BELTING.**



"ACME"
"MERCURIES" Steel Scoop.



PATENTED APR. 17, 1881.
SPIRAL STEEL CONVEYOR.

Railroad Construction

Abbeville, La.—Railroad.—An election will be held on January 25 to consider a proposition of subscribing a five mill tax to the Iberia & Vermillion Railroad.

Aiken, S. C.—Railroad.—A bill has been introduced in the South Carolina legislature chartering the Augusta, Aiken & Sumter Railroad.

Americus, Ga.—Railroad.—The Savannah, Americus & Montgomery Railroad Co., reported in last issue (under Savannah) as to extend its line from Lyons to Savannah, has executed a mortgage on all its property to secure an issue of \$6,150,000 of bonds. S. H. Hawkins, president, writes that there is nothing to report in reference to the above-mentioned extension.

Ashland, Ky.—Railroad Bridge.—Willis L. Ringo, general manager Ashland Improvement Co., reports that local parties have transferred to New York and Cincinnati capitalists the franchise for building a railroad and traffic bridge across the Ohio river between Ashland and Ironton, Ohio. They will soon commence making survey, and promise to have the bridge built before the end of 1892.

Atlanta, Ga.—Electrical Railroad.—The Atlanta & Chattahoochee River Railroad Co., previously referred to, has commenced the construction of its electrical railroad.

Baltimore, Md.—Cable Railroad.—The Baltimore City Passenger Railway Co. has awarded contract for the surface work of cabling its "Red" and "White" lines to E. D. Smith & Son.

Baltimore, Md.—Electrical Railroad.—The Edison General Electric Co., of New York city, will furnish the electrical equipment for the South Baltimore & Curtis Bay Electrical Railroad, referred to in last issue.

Barnwell, S. C.—Street Railway.—The Barnwell Street Railway & Real Estate Co. has applied to the legislature for a charter.

Blountville, Tenn.—Electrical Railroad.—N. J. Phillips reports that W. A. Stadelman, of Philadelphia, Pa., president, and S. L. Nicholson, of Bristol, superintendent, of the Bristol Belt Line Railway Co., will make a survey at once for the proposed electrical railroad from Blountville to Bristol, a distance of 8 miles, and probably build same.

Charleston, S. C.—Electrical Railroad.—The West End Railway Co. has commenced work on its electrical railroad previously reported. E. J. White is in charge of construction.

Cheraw, S. C.—Railroad.—The Chesterfield & Lancaster Railroad Co., lately mentioned, has applied to the legislature for the amendment of its charter, and expects to commence building its road soon after securing same.

Clarksville, Tenn.—Railroad.—It is reported that the Ohio Valley Railroad Co. (office, Evansville, Ind.) has leased the Clarksville & Princeton branch of the Louisville & Nashville Railroad between Princeton, Ky., and Cherry Station, which is 3 miles north of Clarksville. By securing this road the Ohio Valley Co. would only have to build a 6 mile branch to reach Nashville. The report, however, has been denied at the headquarters of the Louisville & Nashville.

Columbus, Miss.—Dummy Line.—The company mentioned in last issue as to build a dummy line has been organized with E. Cohn, president, and C. E. Rodenburg, secretary.

Cotulla, Texas.—Railroad.—Jay Gould, of New York city, will, it is asserted, build a branch road from the International & Great Northern Railroad (office, Palestine) at Cotulla to Eagle Pass in order to reach the Eagle Pass coal fields. He is said to have obtained a concession from the Mexican government to build a bridge across the Rio Grande river from Eagle Pass to Piedras Negras.

Denison, Texas.—Railroad.—The Missouri, Kansas & Texas Railroad Co. recently absorbed the Washita Valley Railroad, and thus came into possession of 66 acres of land on the west side of Denison and 6 miles of completed track running north from Denison. The two lines will be connected at Red river and the old Washita line used for freight, thus avoiding the heavy grade heretofore employed. Adjoining the land acquired, as above stated, the company has surveyed 117 additional acres, to be used exclusively for the yards recently mentioned.

Eutawville, S. C.—Railroad.—A bill has been introduced in the legislature chartering the Eutawville & Summerville Railroad Co.

Fort Worth, Texas.—Electrical Railroad.—R. F. Boals, of Arlington, is reported as arranging for the survey of the proposed electrical railroad from Fort Worth to Dallas previously mentioned.

Gainesville, Fla.—Railroad.—The Gainesville, La Crosse & Lake Butler Railroad Co. has been chartered by John S. Twoomey, Charles L. Fildes, I. E. Webster and others to build a railroad from Gainesville to Lake Butler, and from Gainesville to Tampa bay. The capital stock is \$300,000.

Georgetown, D. C.—Railroad.—The Baltimore & Ohio Railroad Co. (office, Baltimore) has ob-

tained an entrance into Georgetown by means of the Georgetown Railroad, acquired by the purchase of the interests of the Georgetown Railroad, Dock, Elevator & Barge Co. The road is one mile long, and will be connected with the Metropolitan Southern branch of the Baltimore & Ohio, now under construction, by the building of a short line of road.

Knoxville, Tenn.—Dummy Line.—The Fountain City Railroad Co. contemplates extending its dummy line about 1½ miles.

Lexington, Va.—Railroad.—It is reported that the Baltimore & Ohio Railroad Co. (office, Baltimore, Md.) has decided that the next work to be undertaken will be the completion of its Valley branch from Lexington via Roanoke to Salem.

Low Moor, Va.—Railroad.—As stated in last issue, the Chesapeake & Ohio Railroad Co. (office, Richmond) let to contract the double-tracking of its road from Low Moor to Covington, a distance of 8 miles. The company has also awarded contract for a 4 mile extension of its branch on the south side of the New river in West Virginia, and for a 5-mile branch up Keeney creek on its Huntington division in the same State.

Luverne, Ala.—Railroad.—In reference to the proposed extension of the Alabama Midland Railroad (office, Montgomery), previously referred to, H. B. Plant, president of the Plant Investment Co., writes: "We will probably build the road south from Luverne, but have not yet determined when the road will be commenced."

Lynchburg, Va.—Electrical Railroad.—The Rivermont Street Railway Co., reported in last issue as applying to the legislature for a charter, operates the electrical railroad previously mentioned.

Macon, Ga.—Railroad.—The Macon, Dublin & Savannah Railroad Co. intends bonding its 55 miles of road at about \$20,000 per mile to obtain funds for either building from Dublin to Savannah or the purchase of the Savannah, Macon & Atlantic Railroad.

Meadow Creek Station, W. Va.—Railroad.—William Beury, Cooper & Co. are reported as to build a railroad from Meadow Creek Station up Meadow creek and across the divide to Meadow river.

Mt. Carmel, S. C.—Railroad.—A bill has been introduced in the legislature chartering the Florida, Georgia & Carolina Railway, with W. A. Gaines, of Mt. Carmel; J. Fuller Lyon, W. L. Mauldin and others as corporators. The company is authorized to build a railroad from some point on the Savannah river near Mt. Carmel via that town, Abbeville, Due West and Greenville to a point on the North Carolina line. The capital stock is not to exceed \$6,000,000.

Norfolk, Va.—Street Railway.—The Rapid Transit Improvement Co., with Philip Corbin and Andrew Corbin, of New Britain, Conn., and New York city; C. E. Witmore, of Connecticut; D. R. Dunn, A. H. Rogers and F. L. Grandy, of Virginia, as corporators, has applied to the legislature for a charter. The company is authorized to build a street railway using horse, cable, steam or electric-power. The capital stock is \$500,000.

Parkersburg, W. Va.—Belt Railroad.—A company is reported as being organized to build a double-track belt railroad 7 miles long and a bridge across the Kanawha river.

Pemberton, Fla.—Railroad.—The work of tracklaying on the extension of the South Florida Railroad (office, Sanford) north from Pemberton, previously reported, is progressing, and rail is on hand or en route to lay track as far north as Inverness, where connection will be made with the Silver Springs, Ocala & Gulf Railway. The further extension of the line to connect with the Savannah, Florida & Western Railway is under consideration, and will probably be commenced within a short time.

Richmond, Va.—Railroad.—A bill has been introduced in the legislature chartering the Eastern Virginia & Tidewater Railroad Co. with John Tyler, F. E. Montague, Robert McCandlish, J. F. T. Anderson and others as corporators. The proposed route is from some point in Hanover, Caroline or Spotsylvania counties to some point on the Chesapeake bay in Gloucester, Matthews or Middlesex counties. The authorized capital stock is \$2,000,000.

Richmond, Va.—Railroads.—Bills have been introduced in the legislature authorizing the Virginia Pyrites Mining Co. and the Alleghany Iron Co. to build railroads.

Roanoke, Va.—Railroad.—The Roanoke, Fincastle & Clifton Forge Railroad Co., reported in last issue as applying to the legislature for an amendment to its charter, has been organized with Charles H. Vines, of Fincastle, president, and John Ross, vice-president. The road is to be 35 miles long, connecting Roanoke and Clifton Forge. The company has purchased the railroad of the Fincastle & Southern Botetourt Development Co. from Fincastle to Cloverdale, and the whole line let to contract to the Roanoke & Botetourt Construction Co.

San Antonio, Texas.—Railroad.—The San Antonio & Aransas Pass Railroad Co. will, it is stated, amend its charter so as to authorize the

construction of a branch road into Llano county, passing through Fredericksburg and Gillespie counties.

San Antonio, Texas.—Railroad.—H. S. Hastings, of Nockenut, Texas, and others are promoters of a scheme to build a railroad from San Antonio to Velasco.

Savannah, Ga.—Street Railway.—Charles H. Olmstead, C. H. Dorsett and J. L. Whitley have been granted right of way for a street railway.

Savannah, Ga.—Railroad.—William Garrard, acting president of the Middle Georgia & Atlantic Railroad, states that the road is graded from Machen to Covington, a distance of 24 miles, and the work of track-laying will begin immediately, and probably be finished late in the spring. The company then intends commencing building at the Savannah end. The surveys have been completed from Savannah to beyond Statesboro, and profiles and estimates prepared; also survey made for a bridge from Hutchinson island to the mainland.

Savannah, Ga.—Railroad.—At a meeting of the stockholders of the Savannah Construction Co. it was decided to increase the capital stock \$500,000, making it \$1,000,000. This is to furnish funds for cancelling a small floating debt and the building of the South Bound Railroad into Savannah and Columbia, providing terminal facilities, etc. About 8 miles of track will have to be built to enter Savannah, and the company will probably construct a bridge across the Congaree river at Columbia.

Spartanburg, S. C.—Electrical Railroad.—The Spartanburg Bell Electric Railway Co. has applied to the legislature for a charter.

Staunton, Va.—Railroad.—A company will, it is stated, submit a proposition to the people of Highland and Augusta counties to construct a standard-gauge railroad on the bed of the Staunton and Parkersburg turnpike from a point on the Baltimore & Ohio Railroad or the Chesapeake & Ohio Railroad at or near Staunton.

Staunton, Va.—Railroad.—A bill has been introduced in the legislature chartering the Chesapeake, Shenandoah & Western Railroad with Jed Hotchkiss, H. M. Bell, M. Erskine Miller, R. H. Catlett and J. N. Stubbs as corporators. The company proposes building a railroad from a point on or between the Potomac and York rivers across the State to the western boundary line. The capital stock is \$100,000.

Tuscaloosa, Ala.—Railroad.—The contract recently made by the Tuscaloosa Coal, Iron & Land Co. with F. M. Abbott and his associates for the completion of the Tuscaloosa Northern Railroad from deep water on Warrior river to Maxwell's coal seam, a distance of 13 miles, has been abrogated, and a new contract made with the same parties providing for the commencement of work within 90 days from date.

Velasco, Texas.—Electrical Railroad.—The Velasco & Surf Side Railway Co. has awarded contract to Downey Bros., of Houston, for building its electrical railroad lately mentioned.

Victoria, Texas.—Railroad.—Ground has been broken for the Pan-American Railway lately reported as to be built from Victoria to Brownsville, a distance of 240 miles.

Walterboro, S. C.—Railroad.—The Walterboro, Summerville & Otranto Railroad Co. has applied to the legislature for a charter with H. St. J. Card, R. A. Fringle, W. G. Whaley and others as corporators. The road is to extend from a point at or near Walterboro via Summerville to Otranto Station. The capital stock is \$500,000.

Wheeling, W. Va.—Railroad.—Survey is said to have been commenced on the proposed Wheeling & Conneville Railroad to extend from Wheeling to Conneville, Pa.

THE tinplate mill now being built at Baltimore by Messrs. Coates & Co., a full description of which was recently published in the MANUFACTURERS' RECORD, will be finished, it is expected, by the middle of January. It will have a capacity of 1,800 boxes of tinplates a week.

THE FITCHBURG RAILROAD, Popularly Known as the "Hoosac Tunnel Route."

No other railroad leading to New England from Western points has made so much progress in the matter of providing elegant, comfortable and secure facilities for the traveling public as the celebrated Hoosac Tunnel Route, the short line between St. Louis, Chicago and other Western points to Boston. The scenery along the line of the Fitchburg is unsurpassed east of the Rockies. From Troy to Boston

it is one succession of varying landscape, especially through the famous Deerfield valley. Other localities are beautiful in spots, but the charm of this route lies in the fact that there are no long, uninteresting stretches of landscape, with only occasional views that are worth seeing, but in every direction the eye is filled with the varied beauty of river, mountain and smiling valleys. From the car-windows on one side can be seen old "Greylock," the highest point in Massachusetts, while a glance out of the opposite window will catch sight of a lake nestling in all its quiet beauty under the shadow of these everlasting hills. The Hoosac Tunnel, that "hole in the hills," is alone worth a trip over this route. This tunnel is 4½ miles long, consumed years in building, and, although the estimated cost was but \$2,000,000, the actual cost was more than ten times as much. The tunnel is thoroughly ventilated by means of a central shaft that runs like a chimney from the roof of the tunnel, at the very centre of the bore, up to the open air, 1,028 feet above, and the west shaft 2,500 feet from the western entrance. Electric lights, 1,250 in number, placed about 40 feet apart, illuminate the whole tunnel about as one's sitting-room is usually lighted.

The Hoosac Tunnel Route is one of the best-managed in the country. Its passenger service is complete. Large and elegant buffet and parlor sleeping cars are run through from Chicago and other Western points via the Grand Trunk and West Shore Roads to Rotterdam Junction, and over the Erie & Delaware & Hudson Canal Co.'s road via Binghamton and Troy to Boston. The passenger interests of the road are looked after by a competent corps of officials, and the splendid service offered is due in a great degree to their watchfulness and suggestions.

A Saving Process.

The Mudge Process Fruit Packing Co., of Baltimore, Md., has demonstrated all the claims that have been put forth by Mr. Mudge, who discovered this new and most excellent process. The advertisement in another column tells what a large cannery can save by adopting it. Every statement therein made can, it is said, be fully corroborated. For example, Mr. P. L. Lineweaver, of Lineweaver & Co., of 879 and 821 Granby street, Baltimore, writes: "I have used the Mudge process to put up all my fruit this season, and find it does its work perfectly. I have had no trouble in keeping the goods, and their flavor is retained in them." Mr. Lineweaver has been a canner and a manufacturer of oyster and fruit cans for a quarter of a century, and has an experience second to none in this business.

An equally strong commendation has been received from Mr. W. M. Emmart, of Emmart, Wightman & Co., of 619 and 621 S. Carolina street, Baltimore, Md., dealers in oyster and fruit canned goods, who says: "Having purchased one of the Mudge patent processing apparatus, it is with pleasure I recommend it. I used it on peaches, pears and tomatoes, and find it entirely satisfactory, keeping the goods and retaining their flavor. On tomatoes I used the ordinary wax-sealing can. I peeled the tomatoes and put them in the can whole, then placed in the apparatus and cooked 30 minutes; took them out and closed the can. They are keeping nicely; not a can spoiled."

It is claimed, and seemingly with good reason, that this is the best method for preserving high-grade goods for the market of any that has yet been discovered, and is especially valuable to the South. The general introduction of the Mudge process would save the perishable vegetables and fruits of Southern farms and orchards, and make what is now a dead loss a source of large revenues.

FLORIDA PHOSPHATES.

Phosphate Shipments from Fernandina and Punta Gorda—How Phosphates Are Dried.

[Special Cor. MANUFACTURERS' RECORD.]

BARTOW, FLA., December 12, 1891.

Phosphate shipments have been very heavy of late—heavier, perhaps, than at any previous time in the history of the industry—and from the best information obtainable, all or nearly all that has gone forward was shipped on orders from buyers. Little if any was consigned.

The Florida Mirror says the shipments from Fernandina during the month of November "amounted to over 8,000 tons," and from present appearances the December shipments will be at least 10,000 tons. The steamship Oakdale recently sailed from that port for London with a cargo of 1,500 tons from the Dunnellon mines.

The quantity shipped from Punta Gorda has not been officially reported, but it has been very great. The last issue of the Advance Courier reports the steamship Blue Jacket and the schooners Charles W. Petterson and Emile Dingle as having just cleared with cargoes of phosphate pebble from the Charlotte Harbor Co., and the schooners Clara Goodwin and Susan P. Thurlow as having sailed with cargoes from the Peace River Co.

The paper just quoted says: "The Peace River Co. has all the orders for pebble phosphate that it can fill, and has a fleet of vessels carrying pebble phosphate from Punta Gorda to European ports."

HOW PHOSPHATES ARE DRIED.

Your correspondent received a letter a few days ago from a Detroit manufacturing house requesting that something be said in this column of the MANUFACTURERS' RECORD about the process of drying phosphate, and as other readers may be interested in the subject, a brief description of some of the methods will be given.

The crudest of all methods is to place several layers of logs on the ground, and, having piled the phosphate rock on top, fire them. This plan, simple as it is, is said to work pretty well with hard rock, but it would not be admissible, and is never resorted to, in drying pebble.

Cone-shaped brick dryers are used to some extent in the pebble district, and are very satisfactory. These contain a system of alternating ledges or shelves, more easily diagrammed than described. The washed pebble is admitted at the apex of the cone and falls upon a ledge extending about two-thirds the way from one side of the interior space to the other, and inclined about 30 degrees from the horizontal, for the reason that wet pebble will neither roll nor slide down a moderate incline. Below this upper ledge is another, not so steep, projecting from the opposite side of the chamber, on which the pebble falls when dry enough to slip off the first ledge. Below the second one is another still less inclined, and below that another, and so on down, the ledge immediately over the fire being almost horizontal and communicating with an opening through which the dried pebble is discharged. Fuel is put in at the bottom, of course, and the flame finds its way between the ledges, the smoke escaping through a chimney or stack at the top.

The rotary dryer or "roaster" is a much more ingenious and complicated affair. There are several kinds of these, but the pattern most in use is a large, hollow cylinder revolving on trunnions, one end being in contact with a furnace, from which the flame, passing through the cylinder, escapes into a smokestack at the other end.

A spiral conveyor delivers the pebble into the outer end of the cylinder, the latter being provided with serpentine flanges or radial arms, which, as the cylinder revolves, carry the pebble slowly forward to

the furnace end, where it drops into a conveyor and is pushed forward to the boot of the elevator. It requires from five to ten minutes for a given quantity of phosphate pebble to pass through one of these rotary dryers.

The steam-jacket dryer differs in every respect from the preceding. There are scarcely two of these just alike, but the principle is the same in all the dryers of this class now in use in the pebble district. Not being familiar with the technical terms used by machinists, I cannot describe these dryers as a mechanical engineer would do it, but it may convey some idea of their construction to say that sheets of boiler iron are bent into half-circles and riveted together, forming troughs 30 or 40 feet long, another trough of same length, but different diameter, being riveted onto the underside of the first, making a steam space of a few inches between the two. A rotating shaft provided with radial arms, set obliquely, carries the pebble through the trough, which is heated by admitting steam into the space between its inner and outer shell. There are usually three of these steam jacket troughs in a set. The phosphate having passed through one, drops into the second and from that into the third, from which it emerges perfectly dried. Of course, a single trough three times the length of one of these would afford the same amount of exposure to heat and would accomplish the same purpose, but it would not be in such compact form.

It has been suggested that exhaust steam from engines used for other purposes—for the elevators, for instance—might be utilized for supplying these steam dryers, but so far as the writer knows, separate boilers are always provided for the purpose.

JAY SHRADER.

THE BROADENING OUT

Of Southern Development—Signs of Improvement Everywhere.

The signs of a general improvement in industrial developments and in large investment operations throughout the South noted in the last issue of the MANUFACTURERS' RECORD are even more noticeable this week, notwithstanding the near approach of the holiday season, when business men generally wait for the new year before going into new enterprises. There is a decided revival in the projection of new mining, manufacturing and railroad enterprises, and, despite the very low price of cotton, the general outlook in the South is daily growing better, though collections in mercantile lines may for a while continue slow. A general survey of the field shows that good progress is being made towards securing the full \$800,000 required for the proposed steel works near Birmingham, while one or two other steel enterprises are in a fair way to secure the requisite capital. Important coal-mining enterprises are coming to the front in Texas, and, while one company reported last week is putting in a plant to mine 1,000 tons a day, another company with a capital stock of \$300,000 is preparing for active work. The opening up of coal mines in Texas will give a great impetus to the whole State. Extensive railroad work is being pushed, and the opening of the Norfolk & Western's bridge across the Ohio river marks the beginning of another era in the South's foreign commerce and domestic trade as will bring into operation another through line to the West and open the way for pushing Virginia and West Virginia coal into territory now controlled by Pennsylvania coal. At Norfolk this road will at once commence the construction of very large machine shops, and additional piers and warehouses for the shipping trade. The building of a road from Roanoke through Fincastle to Clifton Forge, which is to be pushed, will connect the two great systems, the Norfolk & Western and the Chesapeake & Ohio, and open, in connection with other lines, a direct route between Pittsburgh and the South. In every direction such signs as these tell of the rapid advance which the South is making. This fact is also emphasized by the report of industrial enterprises mentioned in this week's issue of the MANUFACTURERS' RECORD. Among some of the more important ones are the

near completion of large tinplate works at Baltimore to make 1,800 boxes a week, and of the cotton-tie and rolling mill at Denison, Texas, giving that State two cotton-tie mills; the organization of a bridge-building company at Anniston, Ala.; a \$250,000 coal-mining company at Parish, Ala.; a \$25,000 lumber company at Perdue Hill, Ala.; a \$600,000 phosphate company, a \$500,000 phosphate company and a \$10,000 phosphate company in Florida, and large phosphate works in the same State to be built by a Georgia company; a \$10,000 elevator-building company, Atlanta, and the removal from the West to Chattanooga of a similar company; a \$12,000 lime and fertilizer company, Augusta, Ga.; a cannell-coal company, Maysville, Ky.; a \$500,000 fuel-gas company at Newport, Ky.; a \$25,000 tool-manufacturing company at Baltimore, Md.; a \$100,000 mining company at Chattanooga, Tenn.; a \$50,000 coal-mining company at Dallas, Texas; a \$535,000 contract for extension of water works at Fort Worth, Texas; a \$50,000 lumber company at Leggett, Texas; the sale of 80,000 acres of timber land in Texas; a \$50,000 ice-factory company at San Antonio, Texas; a \$25,000 lumber company at Newsoms, Va.; a \$25,000 woodworking company at Radford, Va.; a \$50,000 shoe-factory company at Charleston, W. Va.; a \$10,000 iron-manufacturing company at Huntington, W. Va.; a \$50,000 glass-works company at Kanawha City, W. Va.; a \$200,000 coal-mining company at Fort Smith, Ark.; removal of hardware works from New Jersey to Martinsburg, W. Va., etc.

Southern Financial News.

NEW BANKS.

Anderson, S. C.—A national bank is reported as organized by John L. Forkner, Thomas J. McMahan, James Sansberry and others. The capital stock is said to be \$100,000.

Ceredo, W. Va.—Louis Prichard and associates have applied for authority to organize the First National Bank of Ceredo.

Columbia, S. C.—It is reported that the reorganization of the Commercial Bank as a national institution is under consideration. The capital stock is to be \$200,000.

Jeap, Ga.—As stated in last issue, the Merchants & Farmers' Savings Bank, lately organized with a capital stock of \$50,000, succeeds the branch of the People's Banking Co. of Atlanta.

Key West, Fla.—E. M. Semple is endeavoring to organize a new bank with a capital stock of \$50,000.

Key West, Fla.—The capital stock of the First National Bank of Key West, referred to in last issue, amounting to \$100,000, has been subscribed, and it is understood that the bank will organize with George W. Allen as president.

Leesburg, Fla.—The Leesburg & County State Bank will, it is stated, increase its capital stock to \$25,000.

Lynchburg, Va.—The Virginia Banking & Investment Co. is to change its name to the Traders' Bank on January 1. The capital stock will be increased from \$75,000 to \$150,000.

Madison, N. C.—A bank will probably be organized. J. N. Apple can give information.

Marietta, Ga.—The Marietta Trust & Banking Co., chartered at the last session of the legislature, is being organized by Lewie Sessions, of Union Springs, Ala.; Anderson Bros. and others. The capital stock is to be \$75,000.

Martinsville, Va.—The Commercial Bank of Martinsville is to be organized. W. D. Spencer will probably be president, and J. P. Lewis, cashier.

Morristown, Tenn.—The Merchants' Bank has decided to increase its capital stock from \$60,000 to \$75,000.

Quannah, Texas.—The City National Bank and the First National Bank will, it is stated, consolidate under the former's title. The consolidation is to be capitalized for \$100,000.

Thomaston, Ga.—The Farmers & Merchants' Bank has been organized with William S. Witham, of Anniston, Ala., president, and T. M. Matthews, cashier. The capital stock is \$105,000.

Waco, Texas.—S. B. Moss, of Morgan, Texas, and others have applied for authority to organize the Brazos Valley National Bank of Waco.

Weston, W. Va.—It is stated that a State bank is being organized and that \$40,000 have already been subscribed to the capital stock.

Aberdeen, Miss.—The Bank of Aberdeen has declared an annual dividend of 10 per cent.

Americus, Ga.—The Savannah, Americus & Montgomery Railroad Co. has executed a mortgage on all its property with the Mercantile Trust & Deposit Co. of Baltimore as trustee, to secure an issue of \$6,150,000 of bonds.

Arkansas City, Ark.—The Desha Bank is offering for sale \$15,000 of its capital stock.

Baltimore, Md.—The Northern Central Railway Co. has declared a semi-annual dividend of 4 per cent., and the Baltimore City Passenger Railway Co. a dividend of 75 cents per share.

Charleston, W. Va.—The Charleston Fire & Marine Insurance Co. has been incorporated with a capital stock of \$100,000.

Charleston, S. C.—The Germania Mutual Fire Insurance Co. has applied to the legislature for a charter.

Charlottesville, Va.—The People's National Bank, referred to in last issue, purchased \$11,500 of Charlottesville city bonds at 104 per cent.

Dallas, Texas.—The Texas Securities & Realty Co. has been chartered by James B. Simpson, M. L. Robertson, Herbert Price and others. The capital stock is \$300,000.

Danville, Va.—The \$15,000 of 5 per cent. bonds, lately reported as to be issued by the city for paving purposes, have been purchased by the sinking fund.

Darlington, S. C.—Clarence S. Nettles is offering for sale 75 per cent. city of Darlington bonds of the denomination of \$1,000 each.

Goliad, Texas.—The city will issue and offer for sale on or about January 15 \$11,000 of 6 per cent. 50-year school bonds of the denomination of \$500 each. The right to redeem them after 10 years will be reserved. John W. Cole, mayor, can be addressed.

Macon, Ga.—The Macon, Dublin & Savannah Railroad Co. will probably bond its 55 miles of road at the rate of about \$20,000 per mile.

Maysville, Ky.—The Mason County Building Association has declared dividends on its 11 series of stock payable January 2.

Mobile, Ala.—The British-American Trust Co. of Mobile has been organized. F. H. Clergue, of Maine, will probably be the president, and W. C. Gellibrand, vice-president. The capital stock is \$1,000,000.

Mobile, Ala.—The Mobile Street Railway Co. will meet on January 12 to consider the increase of capital stock and bonded indebtedness.

Montgomery, Ala.—The Capital City Insurance Co. has declared a semi-annual dividend of 5 per cent.

Murphy, N. C.—W. M. West is offering for sale \$30,000 of 30-year 6 per cent. coupon bonds issued to build a courthouse.

Nashville, Tenn.—Blair & Co., of New York city, have purchased at par \$150,000 of water works bonds and \$100,000 of sewer bonds bearing interest at 5 per cent.

New Orleans, La.—The Metropolitan Bank has declared a dividend of 4 per cent., and the New Orleans Brewing Association a semi-annual dividend of 5 per cent.

Norfolk, Va.—The city will, it is stated, issue \$101,500 of 5 per cent. coupon bonds to retire a similar amount of 8 per cent. bonds due next April.

Way Cross, Ga.—The South Georgia Bank will, it is stated, declare a semi-annual dividend of 4 per cent. at its annual meeting to be held January 9.

Southern Securities BOUGHT AND SOLD.

We Buy Total Issues of City, County, Water Company and Street Railroad

BONDS

Correspondence Solicited.

N. W. HARRIS & CO., Bankers,
15 Wall Street, New York.

163 & 165 Dearborn St., Chicago, 70 State St., Boston.

SOUTHERN BANKS.

Below is published a list of Banks and Bankers in the Southern States, whom the MANUFACTURERS' RECORD commends to its readers:

GEORGIA.

AUGUSTA—Georgia Railroad & Banking Co., Chas. H. Ph'nizy, President. Capital \$4,500,000.

MACON—American National Bank, Wm. H. Burden, President. Capital \$350,000.

MACON—Exchange Bank, H. J. Lamar, President, J. W. Caban'ss, Cashier. Capital and surplus \$550,000.

MACON—First National Bank, J. C. Plant, President. Capital and surplus \$250,000.

SOUTH CAROLINA.

COLUMBIA—Carolina National Bank, W. A. Clark, Pres'dent. Capital \$100,000.

VIRGINIA.

BUENA VISTA—Buena Vista Loan & Trust Co., C. B. Guyer, Pres. Capital \$100,000.

PROPOSALS.

MAYOR'S OFFICE.

GREENSBORO, N. C., Oct. 22, 1891.
The undersigned will receive sealed bids for LIGHTING THE CITY OF GREENSBORO, N. C., WITH ELECTRICITY from and after the 15th day of April, 1892. Bids to be made upon an estimate of not less than 30 arc lights of 1,500 candle-power each, or with incandescent lights of equal lighting capacity. Proposals are solicited, and it is desired that each shall contain an offer to light by the moon calendar, and also an offer to light all night. Bids will be opened on February 1st, 1892. All bids must be addressed to Jas. W. Forbis, Mayor, Greensboro, N. C. The city reserves the right to reject any and all bids.
JAS. W. FORBIS,
Mayor, City of Greensboro.

SEALED PROPOSALS will be received at the Office of the Supervising Architect, Treasury Department, Washington, D. C., until 2 o'clock P. M. on the 9th day of January, 1892, for all the labor and materials required to complete the Cut Stone Work and Brick Work of the Superstructure of the U. S. Custom-house and Postoffice Building at Newark, N. J., in accordance with drawings and specifications, copies of which may be had on application at the office of the Superintendent at Newark, N. J. Each bid must be accompanied by a certified check for a sum not less than 25% of the amount of the proposal. The Department will reject all bids received after the time herein stated for opening same, also all bids which do not comply strictly with all the requirements of this invitation. Proposals must be enclosed in envelopes, sealed and marked "Proposal for Cut Stone Work and Brick Work of the Superstructure of the U. S. Custom-house and Postoffice Building at Newark, N. J." and addressed to W. J. ED-BROOKE, Supervising Architect.
December 8th, 1891.

SEALED PROPOSALS will be received at the Office of the Supervising Architect, Treasury Department, Washington, D. C., until 2 o'clock P. M. on the 14th day of January, 1892, for all the labor and materials required for the Interior Finish of the U. S. Custom-house and Postoffice Building at Eastport, Maine, including lathing, plastering, plumbing, stairs, joiner work, wood flooring, tiling, etc., in accordance with drawing and specification, copies of which may be had on application at this office or the office of the superintendent at Eastport Maine. Each bid must be accompanied by a certified check for a sum not less than 25% of the amount of the proposal. The Department will reject all bids received after the time herein stated for opening the same, also bids which do not comply strictly with all the requirements of this invitation. Proposals must be enclosed in envelopes, sealed and marked "Proposal for the Interior Finish of the U. S. Custom-house and Postoffice Building at Eastport, Maine," with name and address of bidder on outside of envelope for identification, and addressed to W. J. ED-BROOKE, Supervising Architect.
December 14, 1891.

SEALED PROPOSALS will be received at the Office of the Supervising Architect, Treasury Department, Washington, D. C., until 2 o'clock P. M. on the 5th day of January, 1892, for all the labor and materials required for furnishing and erecting complete the Hydraulic Passenger Elevator, including Pump, Tanks, Piping, Car, Enclosure of Well Hole, Changes in Connections, etc., of Boiler Plant of the Building Changing of Fourth-story Stairs and Removal and Reconstruction of Water Closet in Basement of the U. S. Postoffice and Courthouse Building at Peoria, Ill., in strict accordance with the drawings and specification, copies of which may be had at this office or the office of the Custodian at Peoria, Ill. Each bid must be accompanied by a certified check for a sum not less than 25% of the amount of the bid. The Department will reject all bids received after the time herein stated for opening the same, also bids which do not comply strictly with all the requirements of this invitation. Proposals must be enclosed in envelopes, sealed and marked "Proposal for Hydraulic Passenger Elevator, etc., and Removal and Reconstruction of Water Closet in Basement of the U. S. Postoffice and Courthouse Building at Peoria, Ill.," and addressed to W. J. ED-BROOKE, Supervising Architect.
December 8th, 1891.

BIDS For the entire output of about 30,000 gallons of GAS TAR

For 1892 of the works of Roanoke Gas & Water Co., Roanoke, Va., will be received until December 19, 1891. Address

J. C. RAWN, Manager,
ROANOKE, VA.

Fine Office Furniture and Folding Beds.
Brass and Wire Work. 215 Wabash Av.
A. H. Andrews & Co., Chicago.

DESKS, CHAIRS,
Office Furniture.
Send for catalogue.
DERBY & KILMER DESK CO.
Baltimore, Md.
Opp. Lowell Depot,
93 Calumet St., Boston,
19 Beekman St., N. Y.

THE BEST OFFICE DESKS FILING CABINETS LETTERS DOCUMENTS THE GLOBE COMPANY CINCINNATI, OHIO NEW YORK

SOUTHERN LOAN BOND INVESTMENTS.

(Under this head the MANUFACTURERS' RECORD will publish announcements, not exceeding one inch, four times free of charge. Only offerings of real estate loans and municipal, county and other bonds, accompanied by specific statement of amount, time, rate of interest and security, will receive free insertion in this column.)

FOR SALE.—\$30,000 IN COUPON BONDS, running 30 years; interest 6%, payable annually. Bonds issued to build Courthouse. Authorized by act of Legislature. Address W. M. WEST, Murphy, N. C.

WANTED.—\$50,000 ON FIRST MORTGAGE (for first mortgage bonds) for two to five years, at the option of investor, at 10% interest by one of the most successful Peace river pebble phosphate companies in Florida. Loan to be used in extending works. Examination of property solicited. Address PEBBLE PHOSPHATE, care the Mayor, Jacksonville, Fla.

WANTED.—\$2,500 FOR THREE YEARS at 10% interest, to be secured by mortgage on 400 acres of mineral land worth ten dollars per acre. Address G. T. BEVINS, Rural, Pike county, Ky.

WANTED.—\$4,000 FOR FIVE YEARS AT 8%, secured by real estate and machinery inventoried at \$45,000; interest payable semi-annually; services also desirable. Address LOOMIS MANUFACTURING CO., Fernandina, Fla.

WANTED.—\$100,000 FOR TEN YEARS at the lowest bid; interest payable quarterly in the city of New York; security, the finest business property in Richmond, Va., with 60% margin. Proposals received until the first of February for the whole or any part not less than \$10,000. Address HENRY L. STAPLES & CO., Richmond, Va.

WANTED.—\$6,000 FOR THREE YEARS at 8%; secured by mortgage on 1,000 acres farm land, tax value \$15,000.

\$15,000 FOR FIVE YEARS AT 8%; secured by mortgage on improved real estate valued at \$50,000, bringing annual income of \$5,000.

\$6,000 FOR FIVE YEARS AT 8%; secured by mortgage on 3,000 acres farm land, tax value \$12,000.

\$10,000 FOR FIVE YEARS AT 8%; secured by mortgage on 6,000 acres of land valued at \$40,000.

\$8,000 FOR FIVE YEARS AT 8%; secured by mortgage on 2,500 acres farm land, tax value \$7,500. Loan to be used for improvements.

\$9,000 FOR FIVE YEARS AT 8%; secured by mortgage on 3,470 acres farm land, tax value \$28,000.

Full particulars regarding the above loans upon application to
J. J. HANESLEY, Americus, Ga.

WANTS.

WANTED.—POSITION as SUPERINTENDENT OF MACHINERY by a thoroughly competent Hydraulic and Mechanical Engineer. Ten years' experience building and operating Hydraulic Compresses, Steam Engines and Locomotives. Can handle men to best advantage. Best of references. O. J. MORRIS, Opelika, Ala.

WANTED PARTNER. A gentleman of Lake City, Florida, owning a FIRST-CLASS SITE and largely interested in Phosphates, desires partner with experience and some capital to establish Fertilizer Factory. Special inducements offered to the right party. The site is within 15 to 18 miles of the Phosphate Mines. Lake City has three railways, reaching every part of the State and Georgia. Further information can be had by addressing or calling on SECRETARY LAKE CITY BOARD OF TRADE

WANT INFLUENTIAL PARTY

Who Can Control \$100,000 Capital
To correspond regarding a Bed of Cement undeveloped at present. I control sale of 100 tons daily at \$4.00 per ton net profit.

"CEMENT,"

Care MANUFACTURERS' RECORD.

LOCATION WANTED.

For a large MACHINERY PLANT, with capital invested of \$250,000 and employing 200 hands, mostly skilled labor; will enlarge and employ 300 to 350 hands in new location; have been in successful operation thirty years; want free site and additional capital; location must be within easy freight distance of New York. Address

ED. N. KIRK TALCOTT, C. E.,
57 Broadway, NEW YORK.

RARE OPPORTUNITY FOR INVESTORS.

FOR SALE.
Seventy-Three 5 Per Cent. Bonds of City of Darlington, S. C.

D. nomination one thousand dollars each. For prices and full particulars address
CLARENCE S. NETTLES, Darlington, S. C.

Important to All Corporations.

Every Incorporated Company should USE KAUFFMAN'S Copyrighted Forms of Improved Record Book, Transfer Book, Stock Register, Stock Ledger and other valuable books. Write for Descriptive Circular. Address

CORPORATION BOOK CO.

Room 35, Leas Bldg., 1236 Chestnut St., Philadelphia, Pa.

KEEP BOOKS

by WEST'S New Original-ENTRY LEDGER
Make the same entry but once. A Ledger in place of a full set of books. Convenient forms for all entries. Easily applied, simple, saves time. West's Self-Proving Balance locates every error. Send 2-cent stamps for illustrated 16-page pamphlet.
WOLCOTT & WEST, SYRACUSE, N. Y.

Reliable Agents Wanted

The Co-Operative Town Company OF TENNESSEE.

Atlantic Building, Washington, D. C.

AUTHORIZED CAPITAL STOCK, \$10,000,000.

26,000 SHARES OF STOCK SOLD TO OVER 1,000 SHAREHOLDERS IN NEARLY EVERY STATE AND TERRITORY.

DIRECTORS: ROBERT P. PORTER, Superintendent of the Census, President; John G. Carlisle, U. S. Senator (Ky.); Isham G. Harris, U. S. Senator (Tenn.); H. C. Hansborough, U. S. Senator (N. D.); Benj. Butterworth, Secretary and Solicitor General of the World's Fair (Ohio); Louis E. McComas (Maryland); Alex. T. Britton, Treasurer of Co-Operative Town Company and Pres. American Security and Trust Co. (Washington, D. C.); S. M. Johnson, Gen. Mgr. of S. & L. A. (Tenn.); Augustine Davis, Chicago, Ill.; B. A. Jenkins, Pres. Tenn. Coal Mining Co. (Tenn.); William T. Love (Tenn.)

BANKERS: American Security and Trust Co., Washington, D. C.

This Company has Located the New Co-Operative Town

ELIZABETHTON,

The Beautiful, Well Watered and Fertile Watauga Valley, East Tennessee.

Competent Agents Wanted to sell the stock of the Company in all parts of the country. The best references from bankers or well-known business firms required.

The most attractive and popular Southern investment stock on the market.

Apply at once to

CHARLES W. ADAMS,

Secretary Co-Operative Town Company, ATLANTIC BUILDING, WASHINGTON, D. C.

Prospectus, Maps and Circulars, Showing Location of Townsite and Company's Mineral Lands, SENT FREE Upon Application to Secretary of Company.

J. Wm. MIDDENDORF.

Members Baltimore Stock Exchange.

Wm. B. OLIVER.

MIDDENDORF, OLIVER & CO. BANKERS AND BROKERS,

No. 213 E. German Street, [KEYSER BUILDING.] Baltimore, Md.

Stocks and Bonds Bought and Sold on Commission. Special attention given to Municipal and other Investment Loans. Dealers in Foreign Exchange. Drafts on Europe and Letters of Credit furnished.

Manufacturing Plants Wanted.

I can offer an excellent location and liberal inducements for the removal or establishment of the following Plants if good showing is made: LOCOMOTIVE WORKS, CAR WORKS, WOOD PULP MILL, PAPER MILL, FOUNDRY AND MACHINE SHOPS, ROLLING MILL, FURNITURE FACTORY, and WOODWORKING FACTORY. Address

ED. N. KIRK TALCOTT, C. E.

57 Broadway, New York.

MANUFACTURERS

Desiring to Locate in the South should Correspond with me.

Handsome Sites for Residences. Investments Made Which Will Pay Handsome Profits.

PARKE L. POINDEXTER, Real Estate Broker,

Correspondence Solicited.

NORFOLK, VA.

THE CAMPBELL COTTON COMPRESS

Is sold on the following **GUARANTEE.**



DEWITT Obtained, Equal to Any, COST of Plant, Less than Any, EXPENSE of Running, Half of Any First-Class Compress.

correspondence solicited.

THE CAMPBELL Cotton Compress Co.,

100, 111, 113 and 115 N. FRONT ST., CINCINNATI, O.

CONSTRUCTION DEPARTMENT.

WE PUBLISH, every week, a list of every new factory, of whatever kind, projected anywhere in the South; every railroad undertaken, and every mining company organized. This information is always fresh, and, by enabling manufacturers to correspond with the projectors of such enterprises before their supplies of machinery have been purchased, is of great value. Manufacturers will find it to their interest to read this department carefully each week.

*Means machinery is wanted, particulars of which will be found in "Machinery Wanted" columns.

In correspondence relating to matters reported in this paper, it will be a favor if it is stated that the information was gained from the MANUFACTURERS' RECORD.

ALABAMA.

Anniston—Bridge Works.—The Alabama Bridge Co. has been organized for the purpose of designing and constructing railroad bridges with T. R. Houser as president; C. J. Houser, vice-president, and W. E. Robertson, engineer.

Attalla—Land Company.—A land company is reported as being organized.

Attalla—Medicine Factory.—A proprietary medicine factory is reported as to be started.

Bessemer—Machine Shop.—J. W. Jordan, now of Iskooda, is reported as to establish a blacksmith shop at Bessemer.

Bessemer—Lock, etc., Factory.—An Ohio party is in correspondence with the Bessemer Land & Improvement Co. relative to the establishment of a factory in Bessemer for the manufacture of locks, latches, door-knobs and fittings, etc.

Birmingham—Clamp Factory.—J. F. Adams, R. Randall and others have incorporated the Adams Track Clamp Co. for the manufacture of track clamps. The capital stock is \$150,000.

Decatur—Planing Mill.—H. S. Fallman is reported as to remove his Brown's Ferry planing mill to Decatur.

Florence—Planing Mill.—Nichols & Co. have, it is stated, leased and will operate the plant of the Florence Planing Mill & Manufacturing Co.

Fort Payne—Lumber Mill.—The Fort Payne Milling & Lumber Co. will hold a meeting on December 17 to consider the issuance of \$5,000 of bonds.

Garland—Cotton Gin.—W. J. Nicholson will rebuild his cotton gin reported in last issue as burned.*

Jasper—Woodworking Factory.—J. J. & C. D. Long contemplate putting hoop machinery in their woodworking factory.

Mobile—Electric-light Plant.—The city council will advertise for bids for the erection of an electric-light plant of 200 arc lights capacity; also for bids for lighting the city with 180 lamps. For particulars address the mayor.

Mobile—Artesian Well.—Elder Bros., of New Orleans, La., are sinking an artesian well in Mobile, as reported last week.

Opelika—Brick Works.—A stock company is reported as to be organized to operate the brick works of Carlisle & Co.

Parish—Coal Mines, Furnaces and Coke Ovens. The American Coal Co. has been organized at Birmingham with a capital stock of \$250,000. The company has purchased 2,500 acres of coal land and leased 4,000 acres of mineral land near Parish, and will, it is stated, develop same and erect furnaces and coke ovens.

Perdue Hill—Lumber Mill.—The Bear Creek Mill Co., reported last week as organized to erect lumber mill, has a capital stock of \$35,000.

Piedmont—Water Works.—The city has granted a franchise to George D. Harris and others for the construction of a system of water works in Piedmont.

Scottsboro—Stave Mill.—W. J. Jackson is reported as erecting a stave mill.

Talladega—Lumber Mill.—J. E. Stone has purchased the interest of Mr. Terry in the Stone-Terry lumber mill and is operating same.

Thomas—Iron Furnace.—It is stated that the Pioneer Mining & Manufacturing Co. contemplates the erection of another iron furnace at Thomas.

ARKANSAS.

Fort Smith—Mineral Lands.—The Muscogee Coal & Mineral Co., with J. M. Hill, president; W. N. Martin, vice-president, and G. H. Williams, secretary, has been incorporated. The capital stock is \$200,000.

Hot Springs—Gold Mine.—It is reported that Burnhart & Majors have leased the Lost Louisiana Gold Mine, and will at once commence the erection of a 50-stamp mill preparatory to development.

Little Rock—Electric-light Plant.—The board of public affairs will recommend the purchase of a new engine and dynamo for the city electric-light plant.

Newport—Steam Laundry.—The Newport Steam Laundry, reported last week as incorporated, will erect a laundry.*

Stuttgart—Basket Factory.—A. B. Payn and L. Ryan are erecting a basket factory, as reported last week. They will operate as the Stuttgart Basket Co.

Tillar—Shingle Mill.—The T. O. Wilson Co. has erected, it is stated, new shingle mill with a daily capacity of 100,000.

FLORIDA.

Anthony—Water Works.—The construction of a system of water works to supply the city from the artesian well of Dr. Kendrick is talked of.

Apalachicola—Artesian Well.—The city desires to contract for the sinking of an artesian well. Address H. W. Johnston.*

Apopka—Iron Works and Woodworking Factory.—The Florida Iron & Wood Works Co. will put new machinery in and increase the capacity of its iron works and woodworking factory.

Bartow—Phosphate Works.—The Pharr Phosphate Co., operating phosphate works, has been incorporated with a capital stock of \$540,000.

De Funiak Springs—Brick Works, Saw Mill, etc.—The A. Lewis Co. will erect a cotton gin, corn mill, saw mill and brick works.*

Fort Myers—Bridge.—The county commissioners will receive proposals for the building of a new bridge over Orange creek until January 4, 1892. For particulars address F. J. Wilson, road superintendent.

Fort White—Phosphate Mines.—Potter & Perin are reported as having purchased the Soosmith phosphate mines near Fort White, and as to put in new machinery and operate same.

Grand Ridge—Canning Factory.—A canning factory will be erected, as reported last week. J. T. Porter can give information.*

Jacksonville—Mining.—M. A. Fuller, S. C. Hubbard, J. F. Lane and others have incorporated the Bellevue Mining Co. with a capital stock of \$10,000.

Lake Ogden—Saw Mill.—The Messrs. Dowling are reported as removing their saw mill from Lake Ogden to Lake Jeffrey.

Orlando—Medicine Factory.—The Orlando Medicine Co. has been incorporated with J. N. McElroy, president, and S. Y. Way, secretary, for the manufacture of proprietary medicines. The capital stock is to be not more than \$100,000.

Pensacola—Lumber Mill.—Simpson & Co. are reported as putting new machinery in and otherwise improving their lumber mill.

Polk County—Fertilizer Factory and Phosphate Mines.—W. C. Kellogg and T. V. Sands, of Brooklyn, N. Y.; M. A. Babcock, of New York city; J. L. Elliott, of Jacksonville, Fla., and T. B. Adams, of Summit, N. J., have incorporated the New York & Florida Phosphate Co. to mine pebble phosphate in the Alafia river, Polk county, Fla., and manufacture and deal in fertilizers. The company will have an office at Summit, N. J., and a main office at No. 2 Wall street, New York city. Its capital stock is \$500,000.

Polk County—Phosphate Mines and Plant.—The Marietta Guano Co., of Atlanta, Ga., is organizing the Marietta Pebble Phosphate Co., and will develop phosphate lands which it has purchased in Polk county. The company will erect a plant to develop river rock.*

St. Augustine—Fibre Factory.—J. E. Morgan, manager, states that the stock company recently mentioned to manufacture fibre from the Spanish bayonet will undoubtedly be organized.

Summerfield—Phosphate Mines and Works.—The Corney Phosphate Co. has been organized with R. S. Buck, Jr., of Mississippi, as general manager, to develop phosphate mines near Summerfield and erect a plant with a daily capacity of 75 tons. The capital stock is \$600,000.

GEORGIA.

Adairsville—Gold Mine.—Thomas Johnson, C. H. Harper and Alfred Johnson are developing a gold mine in Taulding county.

Atlanta—Elevator Works.—The Atlanta Elevator Works has been organized with Hon. Hoke

Smith as president, and A. T. S. Roebing as secretary, for the manufacture of hydraulic passenger and freight elevators. The capital stock is \$10,000.

Atlanta—Land Company.—H. H. Goldsmith, H. H. Cabanis, C. P. Byrd and others have incorporated the West Atlanta Land Co. for the purpose of dealing in real estate. The capital stock is \$62,000, with the privilege of increasing to \$200,000.

Atlanta—Phosphate Mines, etc.—The High Grade Phosphate Co., lately reported as incorporated, has for its object the manufacture of phosphate, fertilizers, lumber, etc.

Atlanta—Manufacturing, etc.—William S. Everett, W. E. Ragan, H. R. Callaway and others have incorporated the Everett-Ridley-Ragan Co. to deal in notions, boots, shoes, etc. The capital stock is \$500,000, \$427,000 of which is fully paid in. The company is privileged to manufacture the articles it deals in.

Augusta—Fertilizer Factory.—W. J. Pallard, general manager of the Bradley Fertilizer Co. at Augusta, states that the company has no idea of building a factory at North Augusta, according to the report mentioned last week.

Augusta—Lime, Fertilizer, etc., Works.—Wilberforce Daniel, J. D. Hahn, W. E. Keener and Robert Schley have incorporated the Georgia Lime & Fertilizer Co. for the purpose of pulverizing carbonate and sulphate of lime, manufacturing fertilizers, etc.; capital stock \$12,000.

Brunswick—Bottling Works.—T. B. Ferguson will resume the operation of bottling works; his plant was burned lately.

Buford—Mining.—J. L. Botsford and H. K. Taylor have incorporated the Richland Mining Co. for mining and other purposes. The capital stock is \$12,500, with privilege of increasing to \$50,000.

Cartersville—Mineral Lands, etc.—A. O. Granger, president of the Etowah Iron Co., referring to the report of the sale of its property mentioned in this column last week, writes that there is no truth in the statement.

Jackson—Distillery.—J. H. Helfield will erect a whiskey distillery.

Jackson—Fertilizer Factory.—Almons & Moon have erected a factory building for the purpose of manufacturing fertilizers.*

Marietta—Chair and Furniture Factory.—James R. Brunby, of Mobile, Ala., and D. Simpson are endeavoring to organize a \$40,000 stock company for the establishment of a chair and furniture factory in Marietta.

Pembroke—Saw Mill.—W. H. Bourne is negotiating for the purchase of the saw mill of J. B. Brown & Co.

Rome—Chemical Works.—Comer, Hull & Co., of Savannah, lately mentioned as having purchased the plant of the Rome Chemical Co., will put new machinery in, improve and put same in operation. The price paid for the plant was \$75,000.

KENTUCKY.

Drakesboro—Saw Mill.—Mr. Ingram has purchased and will operate on a larger scale the saw mill of the Frank Ingram Co.

Eminence—Flour Mill.—R. R. Giltner will put new machinery in his flour mill.*

Gilbert's Creek—Distillery.—W. H. Taylor has, it is stated, put new machinery in his distillery.

Lois—Flour Mill.—Paris & Folie have let contract for a 30-barrel roller process flour mill.

Louisville—Pork-packing House.—John Cudahy, of Chicago, Ill., is reported as having purchased at Louisville the pork-packing establishments of McFerran, Shallock & Co., and Hughes, Taggart & Co., which he will operate under one management. On the latter plant Mr. Cudahy, it is said, will expend \$100,000 in improvements. He is also as having purchased from McFerran, Shallock & Co. 23 acres of land on which will be established a large pork-packing establishment and stock-yards.

Louisville—Woolen Mill.—The Beargrass Woolen Mill, referred to last week, will put in machinery for the manufacture of worsted yarns early in 1892.

Maysville—Coal Mines.—The Maysville Cannel Coal Co. has been organized with Henry Ort, president, and E. H. Martin, secretary, to develop 2,500 acres of coal land in Johnson county which it has purchased from John C. Mays.

Middlesborough—Electric-light and Power Plant, Water Works, etc.—The Middlesborough Electric Light, Heat & Power Co., the Middlesborough Street Railway Co. and the Middlesborough Water Co. have effected a reorganization, electing E. F. Powers as president and E. M. Greenley, secretary.

Newport—Gas Works.—J. H. Mead, Charles Robson, P. B. Spence and others have incorpo-

rated the Ohio Fuel Gas Co. to establish and operate gas works, etc. The capital stock is \$300,000, with the privilege of increasing to \$1,000,000.

Newport—Harness Factory.—R. Woo'ey & Sons, operating an extensive harness factory in Cincinnati, Ohio, will, it is stated, remove same to Newport.

Pineville—Woodworking Factory.—J. W. Cromwell, of Fort Wayne, Ind., is reported as having leased the planing mill of Beatty & Blanc at Pineville, and as having started a general woodworking manufactory.

LOUISIANA.

New Orleans—Land Improvement, etc.—G. A. P. Kelsey, H. C. Fourton, Eugene Poujol and others have incorporated the Young Men's Real Estate Investment Co., Limited, for the purpose of dealing in real estate, improving same, etc. The capital stock is \$50,000, with the privilege of increasing to \$100,000.

New Orleans—Sash, Door and Blind Factory and Planing Mill.—R. H. Hackney has petitioned the city council for authority to erect a sash, door and blind factory and planing mill.

New Orleans—Dye Works.—The New York Steam Dye Works will put in a 15 horse-power engine.

St. Martinsville—Sugar Mill.—S. A. Knapp, of Lake Charles, is reported as erecting a sugar mill at St. Martinsville.

MARYLAND.

Aberdeen—Chair Factory.—Frank Sturr will rebuild his chair factory reported last week as burned.

Baltimore—Tool Works, etc.—John H. Parker, F. E. Knight, Chauncey J. Weatherby and others have incorporated the Parker & Knight Co. for the manufacture of machine tools, etc. The capital stock is \$25,000.

Baltimore—Steamboat Line.—H. Williams, S. H. Forbes, Henry S. Beal and others have incorporated the Weems Steamboat Co. with a capital stock of \$600,000.

Baltimore—Tinplate Mill.—Coates & Sons' tinplate mill, previously reported, is nearing completion. The firm has erected a building 130x135 feet, and rebuilt in it the puddling furnaces of their old foundry. The tinplate mill is being erected by Charles Reeder & Sons, of Baltimore, and consists of the train of rollers; a 32x48 engine, with 30-ton fly-wheel; pickling-house, with two sets of cold rolls and annealing furnaces of 20 tons capacity; trimming and doubling shears, and six Morehead five-roll tin-stacks, having a capacity of 1,800 boxes per week. The iron mill supplying the tinplate works has a weekly capacity of 200 tons. These improvements will cost over \$200,000, \$100,000 of which has been expended on the tinplate mill. Operations are expected to commence by the middle of January.

Baltimore—Factory.—J. G. Hartman will erect a \$5,000 factory.

Brunswick—Electric light Plant.—The Baltimore & Ohio Railroad Co. (office, Baltimore) will rebuild its electric-light plant reported in this issue as burned.

Catoctin Furnace—Furnaces.—Negotiations are said to be in progress for the sale of the Catoctin iron furnaces. Thomas M. Gorsuch, of Frederick, is a local representative of the present owners, and can give information.

Centreville—Creamery.—A. S. Gadd has purchased and will operate the Centreville Creamery, as reported in our last issue; will probably erect a cold-storage plant.

Childs—Electric-light Plant.—M. R. Muckle, Jr., & Co., of Philadelphia, Pa., are putting in the Marley Mill a dynamo capable of furnishing 120 16-candle-power incandescent lights.

Ellicott City—Electric-light Plant.—The McCrea mill property has been leased by parties who will put an electric-light plant in the building and operate it.

Frederick—Wagon-supply Factory.—J. B. Solt, of Pennsylvania, and Elmer Brown are reported as to establish a factory for the manufacture of wagon-makers' supplies, etc.

Middletown—Publishing.—Lewis F. Kefauver, W. W. Doub, E. L. Coblenz and others have incorporated the Farmers' Publishing Co. for the publication of the American Farmer, of Baltimore, which they have purchased. The capital stock is \$15,000.

Salisbury—Basket, etc., Factory.—Benjamin Twoley, of Snow Hill, will remove his plant for the manufacture of splint baskets, eel traps, etc., to Salisbury and consolidate with the Salisbury Manufacturing Co., which has erected a new building 60x100 feet for this new branch of their manufactory.

Sudlersville—Flour Mill.—L. R. McFadden has put roller process machinery in his flour mill.*

Washington, D. C.—Wire-bed Factory.—D. Knowlton will erect a wire-bed factory for the manufacture of wire beds.

MISSISSIPPI.

Batesville—Saw Mill.—J. W. Whittin will erect a saw mill.*

Dayton—Planing Mill.—Hoff & Daniel are reported as erecting a planing mill.

Vicksburg—Electric-light Plant.—The city has accepted the bid of the Hill City Electric Light Co. for lighting the city of Vicksburg with electricity.

NORTH CAROLINA.

Albemarle—Gold Mine.—An Ohio company is reported as having purchased and as developing the old Barringer gold mine in Stanly county. C. F. Burns, superintendent, can give information.

Asheville—Brick and Tile Works.—The Buncombe Brick & Tile Co. will increase its capital stock from \$20,000 to \$30,000.

Carthage—Saw Mills.—Bingham & Co. (office, Portsmouth, Va.) have erected saw mills in Moore county with a capacity of 30,000 feet of lumber per day.

Durham—Cotton Mill.—The Commonwealth Cotton Manufacturing Co. has completed its cotton mill, previously reported, and commenced operations.

Edenton—Knitting Mill.—Efforts are being made for the organization of a \$30,000 stock company to establish a knitting mill.

Edenton—Saw Mills.—The Branning Manufacturing Co. have put in two band saw mills, and are preparing for the erection of a third.

Franklin—Lumber Mill, etc.—T. S. Arthur is erecting a lumber mill, as reported lately; will manufacture lumber, shingles, patent coiled hoops and bent fellows.*

Franklin—Sash, Door and Blind Factory.—Mr. Campbell, of Philadelphia, Pa., is reported as to establish a sash, door and blind factory at Franklin.

Nashville—Gold Mine.—William Mosely is endeavoring to organize a stock company for the purpose of developing a gold mine in Nash county.

North Carolina—Gold Mines.—The North Carolina Gold Mining & Bullion Co. has recently been organized with A. B. Cornell, of New York, as president; E. R. Middlebrook, of Brooklyn, N. Y., as secretary; and A. Wilkoszewski, of New York, as treasurer; its capital stock is \$2,000,000, and its office at 11 Park Row, New York city. The company has purchased the bed of the Uwharrie river in North Carolina, and will dredge same for gold deposits with the latest improved machinery.

Raleigh—Granite Quarries.—The Raleigh Paper Co. is reported as to develop granite quarries at the Falls of Neuse.

Raleigh—Paper Mill.—The Raleigh Paper Co. has completed the improvements and put in its paper mill (at the Falls of Neuse) the machinery previously reported, at a total cost of about \$50,000.

Taylorville—Corn and Flour Mill.—Alspaugh Bros. will rebuild their corn and flour mill reported last week as burned.

Weldon—Planing Mills, Sash, Door, Blind, etc., Factory.—Arrangements have been made for the erection of planing mill, sash, door, blind, wood-working, etc., factory.

Wilmington—Saw Mill.—The Onalow Lumber Co. is erecting a new band mill; capacity will be from 30 to 35 M.

SOUTH CAROLINA.

Charleston—Ferry, etc.—In our last issue we noted the application of the Charleston & Sullivan's Island Ferry & Improvement Co. for incorporation. This company has a capital stock of \$50,000, with privilege of increase to \$300,000, and proposes to establish and maintain a ferry connecting Sullivan's Island and Charleston; privilege is also accorded it to erect wharves, etc. The incorporators are B. F. McCabe, W. H. Welch, W. E. Holmes and others.

Charleston—Electric-power Plant.—The West End Railway Co. contemplates the erection of an electric-power plant.

Cheraw—Cordage Factory.—Boston (Mass.) capitalists speak of establishing the cordage factory mentioned last week, and the citizens have subscribed a certain sum to secure same. If any arrangements are concluded, J. F. McNeir can give information.

Columbia—Land.—A bill has been introduced in the legislature to incorporate the Carolina Land Co.

Columbia—Land Improvement, etc.—A bill has been introduced in the legislature to incorporate the American Land Improvement & Manufacturing Co.

Columbia—Bridges, etc.—A bill has been introduced in the legislature to incorporate the North

& South Construction Co. to construct docks, wharves, bridges, etc.

Columbia—Manufacturing.—A bill has been introduced in the legislature to incorporate the Wolf & Tiger Manufacturing Co.

Hornabro—Corn Mill.—W. A. Evans will start a corn mill.*

Spartanburg—Cotton Gin.—Smith & Bearden expect to rebuild their cotton gin reported last week as burned.

Summerton—Fertilizer Factory.—The Summerton Fertilizer & Manufacturing Co. has increased its capital stock, and will expend several thousand dollars in the improvement of its fertilizer factory.

Sumter—Water Works.—The city will receive bids for water works on the franchise plan. Address: Mr. Pringle, city clerk.

Sumter—Saw Mill.—John C. Dimery is reported as having purchased the "Grooms Place" from E. W. Moise, near Sumter, and as erecting a saw mill on same.

Yorkville—Water Works.—A bill providing for the water works system lately mentioned is now pending in the legislature. The mayor can give information.

TENNESSEE.

Bristol—Novelty Iron Works.—The Bristol Iron Works has been organized with a capital stock of \$5,000 to manufacture automatic monkey-wrenches and the Fields plow, etc.

Chattanooga—Oil Wells.—J. H. Bible, James Alexander, J. G. Brown, of Harriman, and others have organized the Cumberland Oil Co. to sink oil wells in Overton, Fentress, Putnam and Pickett counties.

Chattanooga—Copper and Mica Mines.—The Chattanooga & North Georgia Mica & Mining Co., reported last week as incorporated, has mica and copper lands which it proposes to develop. W. D. L. Robbins is president of the company; capital stock \$100,000.

Clinton—Onyx Mines.—S. H. Stevens is reported as having leased and as developing onyx mines in Anderson county near Clinton.

Dayton—Electric-light Plant.—The city has let contract to Burkhalter & Gibson to put in an electric light plant.

Denmark—Grist Mill and Gin.—J. S. Smith will rebuild his grist mill and cotton gin.

Fountain City—Land Improvement.—The Fountain City Land Co. and Fountain City Railroad Co. having increased their capital stock to \$350,000, will make considerable improvements to the land company's property.

Harriman—Water Works.—J. D. Roberts and others have organized the water company mentioned last week and registered charter as the Harriman Water Co. The company has purchased the temporary works and franchise of the East Tennessee Land Co., and will begin the erection of a permanent plant early in 1893.

Harriman—Ice Factory.—The Emory River Ice Co., reported last week as organized, will erect its plant at a cost of about \$17,000.

Huntsville—Saw Mill.—D. E. Chitwood has purchased and will operate Rodman & Forman's saw mill at Huntsville.*

Knoxville—Zinc Works.—Edes, Mixer & Head, of Clinton, are investigating with a view of removing their zinc works to Knoxville; they are also reported as to erect to additional furnaces at a cost of \$250,000.

McMinnville—Flour Mill.—The Falcon Mills have recently been equipped with roller process machinery.

Morristown—Woodworking Factory.—R. A. Smith, of Chattanooga, has, it is stated, purchased and will operate the woodworking factory of the East Tennessee Woodworking Co. at Morristown.

Morristown—Flour Mill.—The Morristown Mill Co., mentioned last week as to put new machinery in its flour mill, has let contract for sufficient machinery to increase its capacity from 300 to 500 barrels daily.

Paris—Tobacco Factory.—W. H. Hudson & Son are reported as to establish a factory for the manufacture of chewing and smoking tobacco.

Pinson—Flour Mill.—The flour mill mentioned last week will be erected; capacity will be 40 barrels daily. F. W. Wallington can give information.*

Stockton—Flour Mill.—George W. Bailey will put roller process machinery in his flour mill.

TEXAS.

Alvin—Canning Factory.—A company has, it is stated, been organized to erect a canning factory.

Amarillo—Broom Factory.—J. L. Caldwell and others have started a broom factory, as reported lately.*

Ballinger—Dam.—Rumors are current that a company is projected to dam the Colorado river at Ballinger.

Beaumont—Rice Cultivation.—The organization of a \$100,000 stock company for the cultivation of rice in Jefferson county is in contemplation.

Beaumont—Hardware Company.—E. L. Wilson, L. J. Ropke, J. W. Campbell and others have incorporated the E. Wilson Hardware Co. with a capital stock of \$10,000.

Breckenridge—Silver Mines.—W. S. White, D. S. Sloan, W. J. Smith and Dennis Rashias have, it is stated, commenced the development of their silver mines in Stephens county.

Brenham—Artesian Well.—The Brenham Water Works Co. has contracted with W. H. Clark for the sinking of an artesian well.

Brenham—Electric-light Plant.—The Edison General Electric Co., of New York, has made a proposition for the establishment of an electric-light plant in Brenham. The mayor can give information.

Calvert—Electric light Plant.—Messrs. Allen, Collier & Fuller contemplate the establishment of an electric light plant.

Cleburne—Cotton Gin.—R. M. White will rebuild his cotton gin lately reported as burned.*

Colorado—Salt Works.—The new company to erect salt works, mentioned last week, has been talked of, but nothing definite is known of it.

Dallas—Coal Mines.—Thomas Fleming, of Nevada, Mo.; C. I. Mites, of Cold Water, Mich.; H. S. S. Kniffin and others have incorporated the National Coal & Mining Co. with a capital stock of \$50,000.

Dallas—Medicine Factory.—J. M. Faught and others have incorporated the Lone Star Medicine Co. with a capital stock of \$30,000.

Denison—Lumber Mill.—Cummings Bros., of Fort Smith, Ark., are reported as to establish a plant in Denison for the manufacture of hardwoods into lumber for export.

Denison—Cotton-tie and Rolling Mill.—The cotton tie and rolling mill of the Denison Rolling Mill Co., previously reported, is nearing completion, and will soon be put in operation.

Fort Worth—Water Works.—The city has let contract at \$335,000 to McArthur Bros., of Chicago, Ill., for the construction of the new water works lately reported.

Gonzales—Cottonseed-oil Mill and Gin.—The Gonzales Gin & Oil Mill Co., reported in our last issue as incorporated to erect a cottonseed-oil mill and cotton gin, has W. S. Fly for president; R. W. Dilworth, secretary, and G. N. Dilworth, treasurer.

Henrietta—Water Works.—Kansas City (Kans.) parties have made a proposition to construct the water works recently mentioned.

Houston—Brewery.—A party is in correspondence with H. G. Lidstone, secretary of the Commercial Club, relative to the organization of a \$125,000 stock company for the establishment of a brewery in Houston.

Jefferson—Saw Mill.—As stated in our last issue, P. Jossand & Bro. have purchased, remodeled and rebuilt the McDuffie saw mill, and are now operating same.

Jefferson—Barrel Factory.—Pittsburg parties contemplate erecting a barrel and stove factory in Jefferson.

Jefferson—Foundry and Machine Shop.—Murray & Porter will establish iron foundry and machine shop in Jefferson, as reported lately; will operate as the Jefferson Foundry & Machine Shop.*

Leggett—Lumber Mill.—The Polk County Lumber Co. has been incorporated with a capital stock of \$50,000. The incorporators are W. G. Halsey, of Galveston; H. E. Bemis, of Jefferson; V. M. Langdon, of Dallas, and others.

Letat—Cotton Gin.—C. Letat expects to rebuild his cotton gin recently burned.

Lockhart—Water Works.—Dr. Blunt has, it is stated, contracted for the erection of a new water tower at his reservoir to increase the town's water supply.

McKinney—Bottling Works and Ice Factory.—E. W. Morton, Jr., has, as lately reported, purchased and will operate Nenny & Perdue's ice plant and put in bottling works.

Paris—Coal Mine.—A \$300,000 stock company has, it is stated, been organized to develop a coal mine at Antlers.

Queen City—Machine Shop.—The Queen City Iron Works will rebuild its shop reported last week as burned.*

San Antonio—Refrigerating Plant, etc.—The San Antonio Cold Storage & Manufacturing Co. has been incorporated with a capital stock of \$50,000. The incorporators are C. H. Brewster, J. Ward and J. Shull; purposes, to purchase, can, refrigerate and sell meats, vegetables, etc.

Santa Anna—Coal Mines.—Coal mines are being developed near Santa Anna, as lately reported.

Sherman—Water Works.—The city will likely expend \$8,000 in improving its water works. J. W. Levy, mayor.

Smithland—Cotton Gin.—M. & S. Moseley will erect a cotton gin.

St. Jo—Cotton Gin.—W. E. Anthony will rebuild his cotton gin reported last week as burned.*

Stephenville—Silver Mines.—It is stated that \$60,000 worth of new machinery will be put in for the development of the Ranger silver mines.

Summer's Mills—Flour Mill.—J. R. Holland will improve his 8 m. mill.

Temple—Flour Works.—The Temple Blackland Flour Co., reported in our last issue as organized to manufacture the patent plow of L. J. C. Jackson, has been incorporated by George E. Wilcox, J. E. Moore, A. M. Kellar and others; capital stock, \$100,000.

Velasco—Lumber Mill.—L. E. Deger and others have incorporated the Deger Lumber Co. with a capital stock of \$15,000.

Velasco—Grain Elevators.—It is reported that M. W. Barrett, of Lincoln, Ill.; W. H. Harper, of Chicago, Ill., and others contemplate erecting grain elevators at Velasco.

Victoria—Reservoir.—The Victoria Cordage Co. is to build a reservoir with a capacity of 60,000 gallons of water.

Weatherford—Mining.—The Brasos & Croton Creek Mining Co., at its annual meeting held on December 8th, elected W. R. Turner as president and J. N. Haney, secretary, and determined to at once commence mining certain lands.

Yoakum—Water Works.—The Southern Improvement Co., of Dallas, has received franchise to construct the water works mentioned last week.

VIRGINIA.

Buena Vista—Iron Furnace.—The Buena Vista Iron Co. will blow out its iron furnace for repairs.

Christiansburg—Electric-light Plant.—Mr. Ryby is reported as to put in an incandescent electric-light plant.

Covington—Cornmeal Mill.—E. M. Nettlen has awarded contract for the machinery for a cornmeal mill.

Marion—Agricultural-Implement, etc., Factory. Messrs. Look & Lincoln, now operating works, have incorporated as the Look & Lincoln Co. with N. L. Look, president, and A. T. Lincoln, secretary, to manufacture agricultural implements, deal in lumber, etc.; authorized capital stock \$100,000.

Newsoms—Lumber Mill, etc.—The Newsoms Lumber Co. has been incorporated with C. L. Steele, of Suffolk, as president, and V. Perry, of Norfolk, secretary, to operate saw mills, manufacture lumber, etc. The authorized capital stock is \$25,000.

Norfolk—Land Improvement, etc.—Philip and Andrew Corbin, of New Britain, Conn., and New York city; C. E. Wetmore, of Connecticut; A. H. Rogers, of Virginia, and others have incorporated the Rapid Transit Improvement Co. to purchase and improve real estate, etc. The capital stock is to be from \$10,000 to \$500,000.

Quantico (P. O. Potomac)—Flour Mill.—T. B. Mitchell will put new machinery in his flour mill.

Pulaski—Woodworking Factory.—The Pulaski Milling & Manufacturing Co. is enlarging its woodworking factory by the erection of an additional building.

Radford.—In reference to the report mentioned last week, the Radford Pipe & Foundry Co. (main office, Cincinnati, Ohio) states that "this company has not been negotiating for the purchase of the Radford Crane Iron Co.'s plant, and has never had such a thing in contemplation."

Radford—Electric-light Plant.—The Radford Pipe & Foundry Co. is reported as to put an electric-light plant in its new works.

Radford—Building-material Factory, Real Estate, etc.—The Radford Manufacturing Co. has been organized with J. W. Dodley, president; W. R. Kinsey, secretary, and D. T. Sturdivant, treasurer, to manufacture building material, deal in real estate, etc. The authorized capital stock is \$25,000.

Richmond—Tobacco Manufacture, etc.—The Shield Shelburn Tobacco Supply Co. has been incorporated with S. C. Shield, president; W. G. Shelburn, vice-president, and G. C. Shield, secretary, for the purchase, sale and manufacture of tobacco. The capital stock is to be not more than \$50,000 nor less than \$5,000.

Salem—Clothing Factory.—The Holstein Woolen Co. has completed the erection of its clothing factory previously reported. The building is three stories high, 50x100 feet, and is fully equipped with the latest improved machinery for manufacturing pants, shirts and overalls.

Walkerton—Saw Mill.—Maryland parties will, as reported lately, erect a saw mill at Walkerton.

Wytheville—Foundry and Machine Shop.—McDonald & Sons have started their iron foundry and machine shop.

Wytheville—Electric-light Plant.—James Rigby has, it is stated, completed arrangements for the establishment of an electric-light plant to light the cities of Wytheville and Cambria.

WEST VIRGINIA.

Central City (P. O. Huntington)—Planing Mill. R. Shore will remove a planing mill to Central City, as reported last week; will also manufacture sash, door and blinds.

Charleston—Salt Furnace.—J. M. Collins and G. A. Duling are putting in repair the old Daniel Boone salt furnace for the purpose of operating same.

Charleston—Shoe Factory.—Daniel E. Walton, of Wakefield, Mass., and others of Massachusetts, have incorporated the Parker Shoe Manufacturing Co. The capital stock is \$25,000, with the privilege of increasing to \$50,000.

Elkins—Builders' material Factory.—W. C. Russell has purchased site and will erect a factory for the manufacture of builders' materials.

Fairmont—Coal Mines.—The Virginia & Pittsburgh Coal & Coke Co. will, as reported last week, develop 1,100 acres of coal land near Fairmont.

Fairmont—Gas Plant.—A company has, it is stated, been organized to sink a gas well in the Mannington gas belt for the purpose of supplying Fairmont with gas.

Freeport—Flour Mill.—H. B. Pribble has awarded contract for machinery for a roller process flour mill.

Guyandotte—Knitting and Woolen Mill.—Stewart Bros. will put new machinery in their knitting and woolen mill, as reported in our last issue.*

Huntington—Iron Works.—J. L. Caldwell, George F. Miller and others have incorporated the Huntington Heat & Ventilating Co. for the manufacture of furnaces and ventilating apparatus. The capital stock is \$10,000, with privilege of increasing to \$50,000.

Independence—Iron Furnace.—Felix Nemegyei, now in New York city, writes to the MANUFACTURERS' RECORD that he has not sold his Independence furnace property mentioned last week.

Kanawha City—Glass Factory.—The New York Glass Co., George C. Sawyer, president, has contracted with the Kanawha City Co. to erect a 10-pot glass factory in Kanawha City. The company is to erect several buildings, the main one of which will be 150x80 feet, and work on same is to commence within 60 days.

Kenova—Machine Shops.—The Norfolk & Western Railroad Co. (office, Roanoke) will erect machine shops in Kenova, so it is stated.

Loudenville—Oil Well.—H. L. Preiser, of Pittsburg, Pa., is reported as having leased 1,434 acres of land at Loudenville, and as to develop same by the sinking of oil and gas wells.

Martinsburg—Hardware Factory.—The Martinsburg Mining, Manufacturing & Improvement Co. has made arrangements with the Phoenix Lock Co., of Newark, N. J., for the removal to Martinsburg of the builders' hardware factory mentioned last week.

Moundsville—Stone Quarry.—Endeavors are now being made to organize the stone quarrying company mentioned last week. The Moundsville Mining & Manufacturing Co. can give information if anything definite is done.

Moundsville—Brick Works.—The Mound City Brick Co., lately mentioned as having increased its capital stock, will put in repressing machinery.*

Moundsville—Medicine Factory.—The Messrs. Evans are investigating with a view of establishing a factory in Moundsville for the manufacture of medicines.

Moundsville—Manufacture.—Endeavors are being made to organize a stock company for the purchase of a factory in a neighboring town, in order to remove it to Moundsville. The Moundsville Mining & Manufacturing Co. can give information.

New Cumberland—Brick Works.—It is rumored that John Porter and Hugh Sterling, both of Wheeling, will, in connection with other Wheeling and New Cumberland capitalists, erect vitrified brick works near New Cumberland at a cost of \$200,000.

Parkersburg—Lumber Mills.—V. B. Archer and others have incorporated the Laurel Lumber Co. to deal in timber lands, operate lumber mills, etc.

Parkersburg—Furniture Factory.—The Bentley & Gerwig Furniture Co., reported last week as incorporated, will operate the furniture factory of Messrs. Bentley & Gerwig. The capital stock paid in is \$100,000.

Sistersville—Flour Mill.—E. Roome has enlarged his flour mill by the erection of an additional building 16x70 feet in size, three stories high.

Thomas—Coke Ovens.—The H. G. Davis Coal Co. may erect coke ovens in the spring.

Wellsburg—Glass Factory.—Efforts are being made by the Wellsburg Improvement Co. for the rebuilding at Wellsburg of the Union Window Glass Works, of Bellaire, Ohio, which were lately burned.

Wheeling—Canning Factory.—Another canning factory is reported as to be established.

Wheeling—Gas-generator Works.—Joseph P. McKee, of Pittsburg, Pa.; J. D. Cameron and J. M. Thompson, of Wheeling, and others have

incorporated the Seymour Gas Generator Co. The capital stock is \$25,000, with the privilege of increasing to \$100,000.

HURNED.

Anniston, Ala.—The saw mill of Mr. Lumpkin, near Anniston.

Atlanta, Texas.—The planing mill of W. A. Scott.

Atlanta, Ga.—The planing mill of the Dixie Lumber Co.; estimated loss \$6,000.

Bell's Valley, Va.—The saw mill of William Wilson, near Bell's Valley.

Brunswick, Md.—The electric-light plant of the Baltimore & Ohio Railroad (main office, Baltimore).

Denmark, Tenn.—The cotton gin of Mr. Reid, near Denmark.

Duck Hill, Miss.—The saw mill of Chauncy & Mier.

Glen Arm, Md.—The canning factory of Joseph Arthur, near Glen Arm.

Greenwood, Miss.—Leslie Scales's cotton gin, near Greenwood.

Helena, Ark.—The cotton gin and saw mill of T. F. Wright (of Granville, Ohio), near Helena; loss \$7,000.

Marshall, Texas.—J. M. Furr's cotton gin.

Mayfield, Ky.—The Mayfield Woolen Mills damaged by fire to the extent of \$15,000.

New Orleans, La.—The Orleans Rice Mills; loss estimated at \$40,000.

Portsmouth, Va.—William Miller's slaughterhouse, in Norfolk county.

West Point, Miss.—The saw mill of R. M. Trotter.

White Springs, Fla.—The saw and planing mill of H. F. Armington; estimated loss \$10,000.

The cotton gin of J. A. McAlpine, near White Hall, Texas; Carey Shaw and James Towell, near Columbus, Texas; Clay Bros., near Rogers, Texas; D. O. Smith, near Comanche, Texas; B. F. Crawford and J. F. Allen, at Beaver Dam, N. C.; W. J. Holts, at Wortham, Texas; F. W. Mackey, Tuscaloosa, Ala.; J. D. Williams, near Oxford, N. C.; Mr. Morris, near Lone Oak, Texas; Mr. Breaux, near Abbeville, La.; J. S. Smith, Jackson, Tenn.

Building Notes.

Ashland, Ky.—Hotel.—A. C. Campbell, referred to in last issue, is getting plans for a \$25,000 hotel and hopes to build the coming season.

Atlanta, Ga.—Institute.—The building for the Georgia Military Institute, reported in last issue as to be erected at Manchester, will be in shape of three sides of a square, the front 250 feet long, and the wings 152 feet each. E. G. Lind prepared the plans, and the probable cost is \$100,000.

Atlanta, Ga.—It is stated that H. G. Randall, of Boston, Mass., will erect two-story residences and a two-story store building, 40x50 feet, at Ingleside.

Atlanta, Ga.—Office Building.—Venable Bros. contemplate, it is stated, the erection of a ten-story office building to cost from \$500,000 to \$750,000.

Augusta, Ga.—University.—The Presbyterian South Atlantic University will be established at North Augusta, and buildings to cost several hundred thousand dollars are to be erected. Rev. J. B. Shearer, of Davidson College, N. C., can give information.

Augusta, Ga.—Lewis Goodrich will prepare plans for the erection of a three-story brick building for Mr. Brown, of New York.

Austin, Texas—Church.—Contract has been awarded for the erection of the edifice previously mentioned for the Cumberland Presbyterians to cost \$16,000. Larmour & Watson prepared the plans.

Baltimore, Md.—Warehouse.—C. Zimmerman will erect a three-story brick warehouse.

Baltimore, Md.—Hall Building.—Baldwin & Pennington will prepare plans for the erection of a building to be known as McCoy Hall for the Johns Hopkins University.

Baltimore, Md.—Boston Fear will erect 24 two-story brick houses; Frederick Evermann, 3 two-story brick dwellings; W. F. Weber, 6 three-story brick residences; J. W. Carter, 7 two-story brick buildings and one three-story brick building; J. H. Slagle, a two-story brick building; F. Elerman, a two-story brick building; Mr. Schamburger, a two-story brick building; J. W. Hoffacker, 2 three-story residences, 20x65 feet, to cost \$12,000, and T. Grogan, a two-story brick stable.

Biltmore, N. C.—Depot.—An \$18,000 railroad station is reported as to be built at Biltmore for the Richmond & Danville Railroad Co. (office, Richmond, Va.)

Bryan, Texas.—Courthouse.—W. H. Hurman will receive proposals until January 6 for the erection of the courthouse recently reported for Brazos county. Eugene T. Heiser, of Houston, is the architect.

Catonsville, Md.—Hotel.—It is stated that a hotel and a number of cottages will be built on the Armitage property recently purchased by Mr. Bloede.

Chattanooga, Tenn.—M. M. Hedges, referred to in last issue, has commenced the erection of a brick store and residence to cost from \$8,000 to \$12,000.

Clifton Forge, Va.—A branch of the National Railway Building & Loan Association of Atlanta, Ga., has been organized in Clifton Forge.

Columbia, S. C.—Warehouse.—Work will soon be commenced on the erection of the warehouse previously reported for the Farmers' Alliance. It is to be two stories, 250x75 feet. T. B. Burkhart can give information.

Columbus, Ga.—Jail.—L. F. Garrard will receive proposals until February 3 for the erection and completion of the jail lately reported for Muscogee county.

Conway, Ark.—Hall and Opera-house.—The building lately reported as to be erected for the Knights of Pythias is to be a two-story structure 32x100 feet. The first floor will be used for opera-house purposes. R. S. Truett, of Russellville, has the contract at \$6,000.

Covington, Ky.—Warehouse.—The Tobacco Growers' Association has been incorporated by W. L. Scott, W. L. Piper and S. C. Hampton, and will probably erect one or more tobacco warehouses.

Dawson, Ga.—Jail.—Terrell county will probably erect a new jail building in Dawson. The county clerk can give information.

Dinwiddie, Va.—Jail.—The Dinwiddie county jail, reported in last issue as burned, will be rebuilt. J. C. Spain, county clerk, can give particulars.

Ennis, Texas.—The Ennis Hotel Co. has been organized by W. R. Bright and S. D. Curtis, of Corsicana, and J. B. Bridgely, of Ennis.

Franklin, Texas—Church.—The Catholics contemplate building a church.

Greensboro, N. C.—Halls.—The building for the Knights of Pythias, mentioned in last issue, is to be a three-story granite, sandstone, brick and iron structure 30x150 feet. Epps & Hackett prepared the plans. The Masons intend erecting a similar building.

Hagerstown, Md.—Church.—The edifice lately reported as to be built for the First Baptist Church will cost about \$5,000. Rev. T. D. Clark can give particulars.

Hopkinsville, Ky.—Depot.—The depot building lately reported as to be built by the Louisville & Nashville Railroad Co. (office, Louisville) will be a frame building to cost not more than \$3,500.

Houma, La.—Courthouse.—Aurelie Theriot will receive proposals for the erection of a second-story to the courthouse of Terrebonne parish.

Jackson, Miss.—Church.—J. F. Barnes, of Greenville, has been awarded contract for building an edifice for the Baptists at \$16,975. Architect Vaulke, of Brooklyn, N. Y., prepared the plans.

Jacksonville, Fla.—Club Building.—The Seminole Club contemplates erecting a three-story brick building 105x73 feet to cost \$25,000. Joseph H. Durkee can give particulars.

Johnson City, Tenn.—The Magnetic National Building & Loan Association is to be organized with C. M. Brown, president.

Kenova, W. Va.—Depot.—The Norfolk & Western Railroad Co. (office, Roanoke) is reported as to build a depot at Kenova to cost at least \$30,000.

Lambert's Point (P. O. Norfolk), Va.—One or more companies are to be organized to build houses for the employees of the Norfolk & Western Railroad Co.'s shops to be built at Lambert's Point. Wm. Lamb can give particulars.

Lexington, Ky.—Opera-house.—The erection of an opera-house is proposed. The mayor can give information.

Lexington, Ky.—Church.—The members of Main-street Christian Church contemplate building an edifice to cost \$30,000. Rev. R. T. Mathews can give information.

Lexington, Ky.—Bank Building.—Contracts have been awarded for the erection of the building for the Second National Bank, referred to in last issue. F. L. & E. W. Smith prepared the plans, and the estimated cost is \$16,500.

Llano, Texas—Bank Building.—Larmour & Watson, of Austin, have prepared plans for the erection of the \$10,000 building lately reported for the First National Bank.

Maysville, Ky.—M. C. Russell contemplates building a four-story business house next spring to cost from \$10,000 to \$12,000. A hydraulic elevator will be put in.

Memphis, Tenn.—Schoolhouse.—Contract will probably soon be awarded for the erection of a school building. A. B. Hill can give information.

Mobile, Ala.—Depot.—The Mobile & Birmingham Railroad (office, Knoxville, Tenn.) will, it is stated, build a freight depot to cost \$5,000 to replace the one burned a year ago.

Moondsville, W. Va.—David Levi is reported as to erect six dwellings.

Murphy, N. C.—Warehouse.—The erection of a tobacco warehouse is contemplated.

New Orleans, La.—Market-house.—A resolution has been adopted by the city council rejecting bids received for erecting the market-house lately mentioned, and directing the comptroller to readvertise for the same.

Norfolk, Va.—W. J. Brent has been awarded contract at \$9,939 for the erection of a four-story brick building for J. S. Crawford.

Pine Grove, Ky.—Warehouse.—Jones & Gay will rebuild in the spring their warehouse recently destroyed by fire.

Princess Anne, Md.—Schoolhouse.—Contract has been awarded for the erection of a high-school building to cost \$11,399.

Radford, Va.—English capitalists are reported as to invest \$100,000 in the erection of houses at Radford. The Radford Land & Improvement Co. can probably give particulars if the report is true.

Radford, Va.—The Radford Land & Improvement Co. is reported as to build 40 houses.

Raleigh, N. C.—Hotel.—The hotel lately reported as to be built by A. F. Page, of Aberdeen, is to be three stories, 105x75 feet. It is to have elevators, electric lights, bells, etc.

Salisbury, N. C.—Depot.—The Richmond & Danville Railroad Co. (office, Richmond, Va.) is reported as to build a new passenger depot in Salisbury.

Sherman, Texas—City Hall.—The city will probably build the city hall previously mentioned in March of next year at a cost of about \$12,000. J. W. Levy, mayor, can give particulars.

Staunton, Va.—Collins & Hackett will furnish plans for the erection of a residence for R. P. Bell; also for five residences to be built in the spring.

Sumter, S. C.—Jail.—Sumter county will probably build a jail in Sumter. The county clerk can give information.

Titusville, Fla.—Hotel.—A stock company will probably be organized by Benjamin Young and others to erect a hotel.

Waco, Texas—Hotel.—Samuel Herbert is, it is stated, preparing plans for the erection of a three-story hotel.

Washington, D. C.—Church.—John McGregor has secured contract for the erection of an edifice for Heller Memorial Church to cost \$30,000. V. A. Hubbard prepared the plans.

Washington, D. C.—Church.—The edifice lately reported as to be built for the Eastern Presbyterian Church will cost about \$60,000. Nicholas Echhardt has the contract, and A. P. Clark, Jr., is the architect.

Washington, D. C.—T. J. King will erect a three-story dwelling 32x45 feet; Wright & Stockett, 6 three-story dwellings; G. A. Schneider, 8 two-story dwellings; Miss M. Fraser, a three-story dwelling to cost \$20,000; plans have been prepared by C. V. Trott for the erection of a three-story building; T. Rosenbush, a two-story residence to cost \$5,000, and Mrs. K. T. Clifton, a three-story residence to cost \$5,000.

Washington, D. C.—Cathedral.—The Episcopalians contemplate the erection of a cathedral. C. G. Glover can give information.

Waynesboro, Ga.—A branch of the Cumberland Gap Building & Loan Association of Cumberland Gap, Tenn., has been organized with G. O. Warnock, president, and J. D. Munnerlyn, secretary.

Williamson (P. O. Logan), W. Va.—Thompson, Buck & Co. have contract for the erection of 2 business houses 25x60 feet.

Winston, N. C.—Hotel.—It is reported that Hill C. Linthicum has prepared plans for the erection of a hotel to cost \$75,000.

An Important Railroad To Be Built.

FINCASTLE, VA., December 14, 1891.

Editor Manufacturers' Record:

On the 11th inst. the Roanoke, Fincastle & Clifton Forge Railroad Co. was organized with myself as president and John Ross, vice-president. The mileage will be about 35 miles, and when completed will connect the Norfolk & Western with the Chesapeake & Ohio Railroad, and unite the growing towns of Roanoke and Clifton Forge. This line will also make the shortest route from Pittsburg to the South—over the Roanoke Southern.

The railroad of the Fincastle & Southern Botetourt Development Co., from Fincastle to Cloverdale, has been bought by the Roanoke, Fincastle & Clifton Forge Railroad Co., and the whole line let to contract to the Roanoke & Botetourt Construction Co.

C. H. VINES.

"MONEY WANTED" advertised free of charge by the MANUFACTURERS' RECORD.

Information About the South.

THE marvelous mineral and timber wealth of the Southern States, the unrivalled capabilities as a manufacturing area, and the astonishing progress they are making in developing their natural resources and in utilizing their facilities for manufacture, are attracting the attention of the whole world. The extent of these resources and advantages is so fully and carefully set forth, and the progress of this development so faithfully chronicled from week to week in the MANUFACTURERS' RECORD, that it is now accepted everywhere as unquestioned authority on Southern affairs, and its statistics and statements are drawn upon by almost every writer or speaker on any Southern topic.

Its weekly issues constitute an authentic history of the industrial progress of the Southern States. It furnishes every week a vast variety of information on Southern affairs that can be gained from no other source. It discusses in its editorial columns and in its correspondence every topic of Southern interest. It presents the resources and the development of the South in all their phases. To all who are in any way interested or concerned in the prosperity of the South, or who care to keep posted as to the industrial and commercial progress of that section, the MANUFACTURERS' RECORD is indispensable. It is an 80-page weekly industrial, financial and railroad paper. Why not subscribe. Price \$4 a year.

Read What Others Say of the MANUFACTURERS' RECORD and Its Work.

EXTRACTS From a Few of the Hundreds of Letters of Commendation Recently Received:

- Contains best exposition of details of Southern advancement.—*J. S. Jeans, Secretary British Iron and Steel Institute.*
- It is to the industrial South as the sun is to the day.—*J. Reese, inventor of the Basic process.*
- It furnishes the inspiration of Southern progress.—*Louis T. Baxter, President Nashville Commercial Club.*
- Contributed more than all other papers and parties to Southern prosperity.—*E. Watkins, President Chattanooga & Lookout Mountain Railroad.*
- Largely instrumental in attracting capital.—*Jarvis-Conklin Mortgage Trust Co., Kansas City, Mo.*
- Renders valuable and appreciated service.—*C. R. Makepeace, Providence, R. I.*
- More effective than all other agencies in Southern development.—*Lorin Blodgett.*
- Occupies first rank as an authority on Southern interests.—*Baltimore, Chesapeake & Richmond Steamboat Co.*
- Has no rival in value and efficiency as an advocate of Southern advancement.—*Marion, North Carolina, Improvement Co.*
- Value of your paper to our Southland is simply incalculable.—*W. K. Clark & Bro., Clarksville, Tenn.*
- Leads every journal of its class.—*Commercial and Industrial Asso., Montgomery, Ala.*
- Has been the greatest factor in Southern development.—*P. H. Hanes & Co., Winston, N. C.*
- By far the ablest and most intelligent exponent of Southern resources and progress.—*P. A. Hull, Pineville, Ky.*
- Cannot have sufficient praise and commendation.—*Builders and Traders' Exchange, Louisville, Ky.*
- Have always admired its energy, dignity and honorable methods.—*C. A. Gambrell Mfg. Co., Baltimore, Md.*
- More potent than any other single instrumentality.—*George B. Cowlam, Knoxville, Tenn.*
- Invaluable to everyone interested in the South.—*Frederic Taylor, New York.*
- Useful and efficient in building up the South.—*John A. Hambleton & Co., Baltimore.*
- Reliable, efficient and a valuable advertising medium.—*John F. Jones, Blacksburg, S. C.*
- Have had better and richer results from it than almost any other paper.—*Egan Co., Cin.*
- Have found it the best medium in the South.—*Hercules Iron Works, Chicago.*
- Has been an active agent for me in my business.—*Wm. Minnigerode, Cincinnati.*
- An encyclopedia of Southern information.—*S. Laurence French, Boston.*
- An important medium of information, thoroughly reliable and most valuable advertising journal.—*Wilson, Colston & Co., Baltimore.*
- Rendered most valuable aid towards Southern development.—*J. M. Robinson, President Seaboard Air Line.*
- I find the MANUFACTURERS' RECORD everywhere in the South.—*A. E. Randle.*
- Its work can't be overestimated.—*Hon. Pat Calhoun, Atlanta, Ga.*
- It is in every workshop and on the table of every capitalist seeking investment.—*M. M. Martin, Natural Bridge, Va.*

MACHINERY WANTED.

If you desire to purchase machinery of any kind consult our advertising columns, and if you cannot find just what you wish, send us particulars as to the kind of machinery needed. We will make your wants known free of cost, and in this way secure the attention of machinery manufacturers throughout the country. You will thus get all information desired as to prices, etc.

Bagging Machine.—The Jackson Oil Mill Co., Jackson, Ga., wants machine for bagging fertilizers.

Belting.—R. M. White, Cleburne, Texas, wants belting.

Belting.—W. A. Evans, Hornsboro, S. C., wants belting.

Blower.—Murray & Porter, Jefferson, Texas, want a No. 5 Sturdevant steel pressure blower on adjustable frame.

Boiler, etc.—Hall & Davidson, Wilkesboro, N. C., want a kettle and boiler to hold 15 gallons.

Boilers.—Geo. W. Terry, Jr., secretary water commissioners, Atlanta, Ga., will receive bids until December 28th for the construction and delivery of 12 horizontal tubular boilers. Specifications can be had after December 14 by applying to above.

Boiler and Engine.—The A. Lewis Co., De Funiak Springs, Fla., will want a 25 horse-power engine and boiler.

Boring Machine.—The Gates Iron Works, 50 South Clinton street, Chicago, Ill., wants a machine for boring a hole lengthwise through oak and pine timber.

Brick Machinery.—The Mound City Brick Co., Moundville, W. Va., will purchase repressing machinery.

Broom Machinery.—J. L. Caldwell, Amarillo, Texas, wants information on latest improved broom-making machinery.

Canning Factory.—J. T. Porter, Grand Ridge, Fla., will purchase machinery for canning factory.

Canning Factory.—L. H. Clapp, Cleveland, Va., will need machinery for canning factory.

Cotton Gin.—W. J. Nicholson, Garland, Ala., will purchase cotton gin.

Cotton Gins, etc.—W. E. Anthony, St. Jo, Texas, will want three 70-saw gins, feeders, condensers and elevator.

Cotton Gins, Press, etc.—R. M. White, Cleburne, Texas, wants two 60-saw cotton gins, with condenser, feeder and steam press.

Cotton Press.—W. J. Nicholson, Garland, Ala., may want a cotton press.

Cotton Press.—W. E. Anthony, St. Jo, Texas, will want a cotton press.

Crane.—Murray & Porter, Jefferson, Texas, want a 5 ton crane to swing in 35-foot circle.

Derrick.—Ed. Benett, Irvington, Ky., will need derrick rigging for use in quarry.

Drills.—The Queen City Iron Works, Queen City, Texas, will want drills.

Drill Press, etc.—Murray & Porter, Jefferson, Texas, want a 37-inch drill press, back gear power feed; also a flexible drill.

Drums.—Ed. Benett, Irvington, Ky., will need drums for tram-road.

Elevator.—M. C. Russell, Maysville, Ky., will purchase a hydraulic elevator.

Engine.—D. C. Dugan, Box 573, Springfield, Ohio, wants prices on a 100 horse-power automatic engine.

Engine.—L. R. McFadden, Sudlersville, Md., may possibly need a 20 to 30 horse-power engine.

Engines.—V. L. Emerson, Cordele, Ga., is in the market for a new or second-hand 100 horse-power automatic engine and a plain engine of same horse-power.

Engines.—W. F. Foy, New Berne, N. C., wants prices on naphtha engines.

Fellow Bender.—T. S. Arthur, Franklin, N. C., will need fellow bender.

Fertilizer Factory.—Almons & Moon, Jackson, Ga., will want machinery for fertilizer factory.

Flanging Machine.—The Southern Malleable Iron Co., Chattanooga, Tenn., is in need of a small machine for flanging hollow brake beams.

Flour Mill.—Machinery for a 40-barrel flour mill will be purchased at Pinson, Tenn. For information address F. W. Wallington.

Flour-mill Machinery.—J. W. Cage, Sango, Tenn., will want two sets of rollers and bolting cloths, a smut mill and a screen.

Gang Edger.—The Resaca Lumber Co., 333 Richardson Block, Chattanooga, Tenn., wants a 3-saw gang edger.

Grinder.—Hall & Davidson, Wilkesboro, N. C., want a mill to grind smoking tobacco.

Grinding Machine.—R. R. Giltner, Eminence, Ky., desires to procure a machine for grinding the dirt and screenings coming from wheat-cleaning machinery.

Grist Mill.—W. E. Anthony, St. Jo, Texas, will want a grist mill.

Grist Mill.—W. J. Nicholson, Garland, Ala., will purchase grist mill.

Handle, etc., Machinery.—J. D. Warrick, Henderson, Ala., wants handle and heading machinery.

Heaters.—J. L. Caldwell, Amarillo, Texas, wants information on improved family and shop-bath heaters.

Heating Apparatus.—Daniel Trigg, Abingdon, Va., wants apparatus for heating residence with hot water.

Hoop Bender.—T. S. Arthur, Franklin, N. C., will need hoop bender.

Hydraulic Press.—Hall & Davidson, Wilkesboro, N. C., want quotations on a hydraulic pump press and a hydraulic box screw press (for tobacco factory).

Knitting-mill Machinery.—Stewart Bros., Guyandotte, W. Va., want to buy one set of cards, one spinning machine, one hosiery press, several knitting machines for hosiery and one shoddy picker.

Knives.—Hall & Davidson, Wilkesboro, N. C., want knives for tobacco factory.

Lathe.—The Queen City Iron Works, Queen City, Texas, will want a lathe 17 feet x 10 inches.

Lathes.—Murray & Porter, Jefferson, Texas, want a 35-foot screw-cutting compound power cross-feed engine lathe to take 9 feet between centers; also one 20 or 22 foot lathe, same as above, 20-foot bed.

Laundry Machinery.—The Newport Steam Laundry Co., Newport, Ark., wants to purchase an outfit for steam laundry.

Lumber-mill Machinery.—L. H. Carter, Elkin, N. C., wants catalogues and prices on lumber mill machinery, such as planers, mortisers, turning lathes, etc.

Machine Tools, etc.—Edwin Stewart, paymaster general, Washington, D. C., will receive sealed proposals until December 22 to furnish at the navy yard, League Island, a quantity of machine tools, consisting of tenoning, mortising, scroll sawing, resawing and carving machines, planer, knife grinder, matcher, jointing machine, grindstone, paints, oils, turpentine, varnish. The articles must conform to the naval standard and pass the usual naval inspection. Blank proposals will be furnished on application.

Match Factory.—The Basic City Match Co., Basic City, Va., wants bids on five coilers and two box machines, one for the outside and one for the inside paper box.

Mixers.—The Jackson Oil Mill Co., Jackson, Ga., wants machine for mixing fertilizers.

Mortiser.—The Gates Iron Works, 50 South Clinton street, Chicago, Ill., wants a mortiser.

Motors.—W. F. Foy, New Berne, N. C., wants prices on electric motors.

Pattern Machinery.—Murray & Porter, Jefferson, Texas, will want pattern-making machinery.

Phosphate-mining Machinery.—The Marietta Guano Co., Atlanta, Ga., wants to correspond with manufacturers of machinery for mining river phosphate rock.

Piping.—Piping for artesian well will be wanted at Apalachicola, Fla. Address H. W. Johnston.

Piping.—The DeSha Lumber & Planting Co., Arkansas City, Ark., wants 300 to 500 feet of 6-inch gas pipe.

Planer.—Murray & Porter, Jefferson, Texas, want a 30x30x8-foot planer.

Pulleys, etc.—R. M. White, Cleburne, Texas, wants pulleys and shafting.

Pulleys, etc.—W. A. Evans, Hornsboro, S. C., wants pulleys and shafting.

Pump.—The Roanoke Milling Co., Roanoke, Va., wants a pump.

Pump.—Otto Thoman, comptroller, New Orleans, La., will receive sealed proposals until February 18th for the construction of a new drainage pump in accordance with plans and specifications now on file. A deposit of \$200 must accompany each bid.

Rails, etc.—The Roanoke, Fincastle & Clifton Forge Railroad Co. will want about 1,300 tons steel rails, fish plates, spikes, etc., to iron 13 miles of road about March 1. Address C. H. Vines, president, Fincastle, Va.

Rice Mill.—The A. Lewis Co., De Funiak Springs, Fla., wants prices on rice machinery for small plant.

Rolling Stock.—The Roanoke, Fincastle & Clifton Forge Railroad Co. will want rolling stock. Address C. H. Vines, president, Fincastle, Va.

Sack Machinery.—T. F. Aunspaugh, 102 Vine street, Chattanooga, Tenn., wants to correspond with manufacturers of looms or weaving machines for making seamless sacks.

Saw.—The Gates Iron Works, 50 South Clinton street, Chicago, Ill., wants a swinging cut-off saw.

Saws.—D. E. Chitwood, Huntsville, Tenn., wants prices on saws.

Saw Mill.—L. H. Carter, Elkin, N. C., wants prices on saw mill.

Saw Mill.—J. W. Whittin, Batesville, Miss., will purchase saw-mill outfit.

Separators.—The Southern Equipment Co., Chattanooga, Tenn., wants catalogues giving full explanation and prices on magnetic separators suitable for removing iron and steel from furnace slag after it is crushed.

Shaper.—Murray & Porter, Jefferson, Tex., want a 16-foot shaper.

Shapers.—Hall & Davidson, Wilkesboro, N. C., want a set of shapers for tobacco factory.

Shingle Machine.—G. M. L. Spence, Carrollton, Ga., wants to buy a shingle machine.

Shingle Mill.—J. D. Warrick, Henderson, Ala., wants shingle-mill machinery.

Spoke Lathe.—T. S. Arthur, Franklin, N. C., will need spoke lathe.

Sprinkler System.—The Richmond Cedar Works, Richmond, Va., wants a sprinkler system for its warehouse.

Standpipe.—Bids are wanted at New Braunfels, Texas, for the building of a new steel standpipe (about 30x65 feet) with concrete foundations. Address C. A. Jahn, chairman water works committee.

Stave Machinery.—J. D. Warrick, Henderson, Ala., wants stave machinery.

Surfacer.—The Gates Iron Works, 50 South Clinton street, Chicago, Ill., wants a surfacer.

Tools.—The Queen City Iron Works, Queen City, Texas, will want threading tools; also all foundry tools.

Tools.—Ed. Benett, Irvington, Ky., will need tools for use in quarry.

Traction Engines.—The Southern Equipment Co., Chattanooga, Tenn., wants catalogues giving full explanation and prices on 20, 25 and 30 horse-power traction engines.

Water Works.—Daniel Trigg, Abingdon, Va., wants information as to the best means of supplying suburban residence with water, to be drawn from deep well.

Well-boring Machinery.—G. W. Platt, Plano, Texas, may probably want machinery for boring deep well.

Woodworking Machinery.—L. H. Carter, Elkin, N. C., wants prices on sash, door and blind and other woodworking machinery.

BATH TUBS, sail-boats of light draft, skiffs, and probably one or two boats with motive power, naphtha or steam, to carry 20 to 25 persons, will be wanted. Address O. L. Aldrich, foreman American Well Works, Corpus Christi, Texas.

INFORMATION concerning coal co king and heating stoves for family use is wanted by J. L. Caldwell, Amarillo, Texas.

J. D. WARRICK, of Henderson, Ala., desires to correspond with barrel manufacturers.

W. F. FOY, New Berne, N. C., wants prices on naphtha launches.

HAVE you real estate notes, municipal or county bonds that you want to convert into cash? If it is a Southern note or bond you can advertise it free, four times, in the **MANUFACTURERS' RECORD.**

VALUABLE PROPERTIES of all descriptions for sale in the growing city of

WINSTON-SALEM, N. C.
5 miles Electric Street Railroad. 112 Factories. Population 1894, 4,194. Population 1899, 16,471. Tobacco Center. Railroad Center. Paved Streets. The Future Metropolis of the South.

W. A. HUMPHREY, Real Estate Agent.

LARGE PLACER GOLD MINE
FOR SALE.

Situated in Burke County, North Carolina, U. S. A. For printed report on mine apply to

E. E. BOULDIN,
DANVILLE, VA., U. S. A.

ROLLING MILL
For Sale or Lease,

Of modern construction and in excellent order throughout; improved appliances for economical operation; location in every way unsurpassed. For particulars address

ANNISTON ROLLING MILLS,
ANNISTON, ALA.

FOR SALE—A BARGAIN.

2 SIX TONS "LINDE" ICE MACHINES,

Driven by a Corliss Engine.
Just the Plant for a Brewery.

TAMPA ICE CO., Tampa, Fla.

Yellow Pine Plant For Sale.

We offer for sale on reasonable terms our entire plant, which is complete in all its parts, comprising Mills, Lands and Railroad Equipment at Bozeman, and City Yard and Contracting Machinery at Birmingham.

MARBURY & JONES,
Bozeman, Autauga County, Ala.

VALUABLE MANUFACTURING PLANT FOR SALE.

In St. Augustine, Fla., to settle an estate, consisting of Factory and Woodworking Machinery, now running. Nine tenement houses. A good investment. Write for particulars.

COOK & LIBBY,
St. Augustine, Fla.

Novelty Woodworking Sheds

FOR SALE.

Situated in Sanford, Fla. Good reasons for selling. A good opportunity for a hustler. Address

W. T. COTTER,
ELY BLOCK, JACKSONVILLE, FLA.

Valuable Phosphate Property

FOR LEASE.

I have forty acres of valuable phosphate land, situated in Marion county, Florida, which I will lease for a term of years, or until deposit is exhausted, on a royalty of fifty cents per ton on following conditions: Mining to begin within 90 days from signing of contract; not less than 4,000 tons to be mined yearly; \$2,000 to be paid on signing of contract, and balance to be paid quarterly after 4,000 tons have been mined. This property contains "plate," "pebble" and "soft" or soluble phosphate, and lies one mile from railroad. Address

ANDERSON,
Kendrick, Marion County, Florida.

For Sale or Lease.

On Royalty to a Responsible Company for a Term of Years,

The most valuable tract of Magnetic Iron Ore Property in the South. Containing 5,000 acres, situated within seven miles of a new railroad and almost inexhaustible in quantity. It can be mined cheaply, as washing of the ore is not necessary. Also 100-acre tract of Black Marble, Lithograph Stone and Limestone, all of superior quality and immediately on Norfolk & Western Railroad. Terms easy. A bargain can be had by corresponding with

R. L. CREGORY & CO.,
REAL ESTATE AGENTS,
ROANOKE, VA.

FOR SALE.

One F. E. Reed **SCREW CUTTING LATHE**, 25 in. swing, 12 ft. bed, all complete with compound rest, power cross feed, has raising blocks and special tool rest to raise to 30 in. made by the maker, has hollow spindle, all cut gearing, has both screw and friction feed and full set gearing for screw cutting, has a 15 in. Westcott universal and independent chuck, friction clutch counter shaft and all complete and in good order, only bought new from the shops five years ago and very little used, in fact the planer marks are yet seen on the V's under the carriage; cost over \$200, list \$1,200; will sell for want of use for \$395 CASH, is cheap at \$500 to anyone having use for it.

One Smith & Garvin **MILLING MACHINE**, hollow spindle, good order, with chuck, No. 3. Cost over \$400, and will sell with counters for \$190.

One 10 in. stroke 5 ft. **SHAPER**, good order, with counter shaft for \$250.

One No. 1 1/2 New Haven **DRILL PRESS**, with power feed, back geared and all in good order for \$200, including chucks and drills, sockets and tapers.

FOR SALE.

One complete **BOILER SHOP OUTFIT** consisting of one large Power Punch and Shear, combined throat of shear is 18 in., of punch but 14 in., weight over 8 tons, is a good strong machine and cost originally over \$3,000. For want of further use will sell it for \$450. One Power Rolls, will bend sheet 8 ft. 9 in. wide, rolls 7 in. diameter, has back and forward motion counters, etc., complete, and will sell it for want of further use for \$425—its cheap at \$700. One set clamp fire, 3 ft. 9 in. long, good and strong brass nuts with levers to work for \$57. One set Hand Stack Rolls, 3 ft. 7 in. long x 4 in. diameter for \$30. One Bertsch & Co. Hand Punch, nearly new, for \$50. One common Hand Punch \$15. One Drill Press for boring boiler heads and counter shaft, \$25. One Fan and Counter Shaft for Flange large fire, \$35. Lot Tube Expanders, five in. all, for the lot \$20; or for the ENTIRE OUTFIT I will take \$1,100 CASH. Call or address

EZRA F. LANDIS,
LANCASTER, PA.

Hercules Ice Machines

FOR

Ice Making, Cold Storage, Packing Houses, Breweries, &c.

Send for our new illustrated circular.

Hercules Iron Works, - - - Chicago, Ill.

THE FRED. W. WOLF COMPANY,

Sole American Manufacturers of

The Linde Ice & Refrigerating Machinery.

FACTORY:

302 to 330 HATHORN AVE.,

OFFICES:

555 to 556 N. HALSTED ST.

CHICAGO, ILL.

Brewery Work and Cold Storage our Specialty. Plans and Estimates Promptly Furnished.

JULIAN KENNEDY,

Consulting and Contracting Engineer,

HAMILTON BUILDING, PITTSBURGH, PA.

Blast Furnaces, Bessemer and Open Hearth Steel Works, Rolling Mills, Steam and Hydraulic Machinery, Heating Furnaces, Gas Producers, &c.

BRANCH OFFICE OF THE LATROBE STEEL WORKS.

LOCKWOOD, GREENE & CO.

Mill Architects and Engineers,

131 Devonshire Street, Boston, Mass.

SPECIALTY:

Plans, Specifications and Superintendence for the Construction, Equipment and Organization of Cotton, Woolen, Worsted and other Textile Mills.

DREW, BALDWIN & CO.

COTTON MILL

Architects and Engineers,

45 Broadway, New York.

ARTHUR F. GRAY

MILL ARCHITECT & ENGINEER.

53 State & 19 Kilby Sts., Exchange Building, BOSTON, MASS.

Textile and other Industrial Plants designed, Machinery and Power arranged, and construction superintended in a thorough manner.

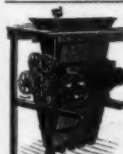
Edwin F. Partridge, Pres.; Jos. W. Hawley V.-Pres.; H. Bayard Hodge, Sec.; Wm. S. Perot, Jr., Treas.; Jos. S. Keen, Jr., General Manager.

The AMERICAN PIPE MFG. CO.

Phipps' Hydraulic Pipe a Specialty.

Engineers & Contractors for Water Works.

Solicit correspondence from town wishing to build upon franchise plan. Factory, Germantown Junction; Office, Room 24, 1326 Chestnut st., Phila.



THE BROUGHTON DRY MIXER

For Hard Plaster, Paints, &c.

W. D. DUNNING,

Syracuse, N. Y.

The Boomer & Boschert

HYDRAULIC

PRESS

FOR BALING

Cloth, Paper, Yarn, &c.

Or for any other purpose requiring great pressure.

BOOMER & BOSCHERT PRESS CO.

329 W. Water St., Syracuse, N. Y.

BLUE BRICKS

Suitable for Acid Towers.

Shipped F. O. B. Liverpool.

W. M. FULLER, JR.

88 Great Charles Street,

BIRMINGHAM, ENG.

CORRESPONDENCE
SOLICITED BY

WALTER H. CALHOUN, C. E.

15 Years' Experience.
Highest References.
Accuracy and Promptness

ENGINEERING AGENT.

Estimates Furnished on PLANS AND SPECIFICATIONS. Reports and Consultations.

SPECIALTIES:

WATER WORKS AND WATER SUPPLY,

Gas Works, Sewerage, Filters, Railroads, Bridges,

GRAIN ELEVATORS, FLOUR MILLS & MACHINE PLANTS COMPLETE

In any part of the Country. Correspondence solicited.

Main Office, GREEN BAY, WIS.

S. B. MOSBY & CO.

Engineers & Contractors,

BEDFORD CITY, - - VIRGINIA.

Railroads surveyed and estimates of cost furnished. Contracts entered into for the construction of railroads, canals, water works, sewerage, etc. Town-sites laid off. Mineral lands surveyed and reported on.

A. G. McILWAINE, Late of Sav. American & Montic's R. R.

H. B. NICHOLAS, Late of Orange-Keyville R. R. and Logan City.

W. A. DARTER, Late Chief Eng. Orange-Keyville R. R.

McILWAINE, NICHOLAS & DARTER

Civil Engineers and General Contractors,

Farmville, Va. and Arvonville, Va.

Surveys made and estimates furnished for railroad and municipal work. Special attention given to laying off towns and cities. Correspondence solicited.

Brothers de Saussure & Waters,

ARCHITECTS,

Architects of the new "Academy of Music."

ROANOKE, VA.

Plans, Specifications and Superintendence.

Fresco, Painting and Artistic Work.

WILSON & HUGGINS,

ARCHITECTS.

Hotels and Public Buildings a Specialty.

Correspondence Solicited.

ROANOKE, VA.

F. FELKEL,

CIVIL ENGINEER AND ARCHITECT.

155 ST. CLAIR STREET, CLEVELAND, O.

Iron Buildings, Large Span Roofs,

PLANS for Manufacturing Plants, Warehouses and other Heavy Structures a Specialty.

JOHN SANDERSON,

F. C. S. A. I. C.

Assays and Analyses of Ores, Minerals, Metals, Coals, Waters, Fertilizers, Foods, Commercial Articles, etc., etc.

OFFICE AND LABORATORY:

CUMBERLAND AVENUE, bet. 18th and 19th Streets,

MIDDLESBOROUGH, KY.

BEATEY & HODGSON,

Electrical Engineers.

All Kinds Electric Apparatus Furnished and Installed. Wiring done by day or contract. All Kinds of Second-hand Dynamos and Motors. Engineers, Firemen and Wiremen furnished to Construct, Repair and Run Stations.

209 WASHINGTON STREET,

BOSTON, MASS.

ARTHUR L. STEVENS,

MECHANICAL ENGINEER,

11 South Ninth St., Philadelphia, Pa.

Special Machinery designed and built by contract. Agent for the purchase of machinery and supplies.

VON SCHON & CARNER,

Civil Engineers,

FREDERICKSBURG, VA.

Property, Topographical, Townsite, RAILROAD and MINING SURVEYS Reports on Mineral and Timber Property Sewerage and Water Works.

WE OPERATE THROUGHOUT THE SOUTH.

J. D. & WM. G. MOLER,

Civil and Consulting Engineers,

SPRINGFIELD, OHIO. CHARLESTON, W. VA.

Water Works, Sewerage, Railroads, Mineral and Timber Surveys and Townsites. Construction Superintended.

SINCLAIR & LEAVENWORTH,

CIVIL ENGINEERS,

835 Broad St. Chattanooga, Tenn.

Surveys and construction of Railroads, Water Works and Sewers. Plans, specifications and estimates furnished and construction superintended. Examinations and reports of projected railroad lines. Consultation and correspondence invited.

W. H. GIBBES, JR., & CO.

COLUMBIA, S. C.

Engineers, Contractors and Dealers.

Fertilizer Factories and Acid Chambers, Electric-light Plants of any size and kind. The best service and best machinery at close prices.

D. R. LEAN,

ENGINEER AND CONTRACTOR,

PITTSBURGH, PA.

Blast Furnace and Steel Plant Construction. Sole agent Ford & Moncur's Patent Fire Brick Stove.

C. R. FRENCH, C. E. G. M. WARREN,

Engineer S. D. Co. S. E.

FRENCH & WARREN,

Civil Engineers.

Surveys, plans and estimates for Roads, Railroads, Bridges, Hydraulic and Municipal Works, Town-sites, Topographical Maps and Mining Reports.

Rooms 29 and 30 CROWLEY BUILDING,

STAUNTON, VIRGINIA

GEORGE N. COMLY,

Consulting Mechanical Engineer,

804 Adams Street, WILMINGTON, D. C.

Steam Engines Indicated, Boilers Tested for evaporative efficiency and Steam Expert Work in general. Factories designed. Drawings and specifications furnished on application. Correspondence solicited.

JOHN C. CHASE,

Hydraulic & Sanitary Engineer

WILMINGTON, N. C.

Professional advice regarding Water Supply, Sewerage and the Development of Water Power. Surveys, Plans, Specifications, Estimates and Reports.

FREDERICK J. AMWEG, C. E.,

Mem. Am. Soc. C. E.

Engineer, Contractor and Builder,

Hale Building, Rooms 42-43, Philadelphia.

Southern Office, Commercial Bank Building, Roanoke, Va.

ADAMS & WOODSON BUILDERS

LYNCHBURG VA.

CORRESPONDENCE INVITED

Chemical and Metallurgical Examinations.

ANALYSES AND REPORTS.

FREDERIC P. DEWEY,

Washington Laboratory and Metallurgical Works,

681 F. Street, N. W. Washington, D. C.

WALKER BOWMAN, Ph. D.

ANALYTICAL CHEMIST,

Analysis of ores, coal, limestone, mineral and sanitary waters, technical products, &c.

Phosphates and Fertilizers a Specialty.

Send for price list.

Office and Laboratory, 75 Broad St., New York.

ASSAYERS AND CHEMISTS,

ASSAYS AND ANALYSES

OF ALL KINDS, such as Ores, Alloys, Metals, Water for Boiler Purposes, &c.

MARINER & HOSKINS,

81 S. Clark Street (top floor), CHICAGO, ILL.

The Muller Lathe.

The accompanying cut shows the "new 20 inch Muller lathe" made by the Bradford Mill Co., of Cincinnati, Ohio. This company succeeded to the business of Jas. Bradford & Co., which was established in 1840. It was not until about two years ago that this company commenced the

taper attachment can be furnished if desired.

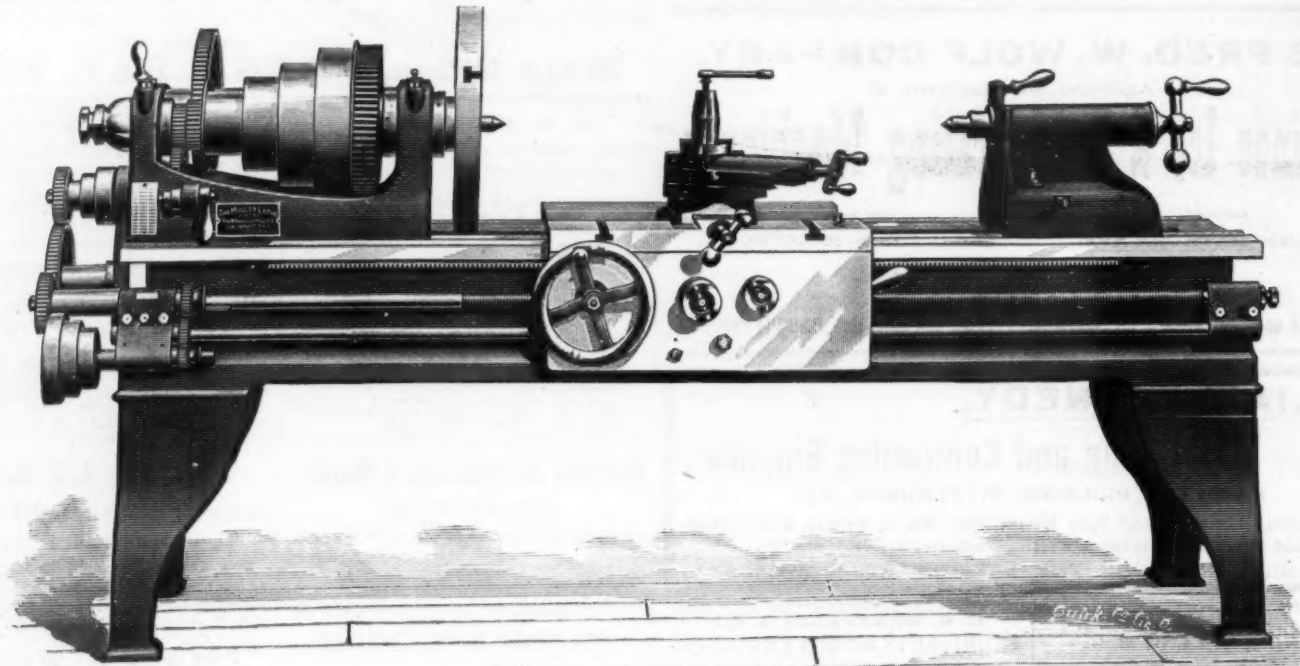
The countershaft has patented friction pulleys 14 inches in diameter for $3\frac{1}{2}$ inch belt to run 120 revolutions per minute.

Every lathe is run and carefully tested before shipment.

For further information address the builders.

on the market, some of them having a capacity of 250 tons per hour. Owing to the development of the phosphate beds of Florida and the importance of securing machinery that will most economically reduce the rock to commercial shape, this subject is one of peculiar interest to that part of the South; but it is none the less so to the South in general when it is con-

It is not the purpose here to explain the details of the machine; these will be furnished on application. Anyone in need of a machine that will produce fast and perfect work, either light or heavy, on hard or soft woods, should get full information and an explanatory circular on the new features and improvements combined in this machine.



THE MULLER LATHE.

manufacture of machine tools when the Muller Machine Tool Co.'s business was absorbed by the Bradford Co. From the very first the aim has been to establish a reputation for high-grade tools and to add such improvements in them as to meet all requirements in a wide range of usage.

Following is a description of the lathe: The spindle is made of high-grade hard hammered steel, with 1 11-16 hole through the front bearing, which is $3\frac{1}{4} \times 5\frac{1}{4}$ inches and ground true. It runs in boxes of hard bronze metal, which are of such a form as to retain alignment of spindle after considerable wear and are easily duplicated.

The feed arrangement is entirely new, enabling the operator to drive feed with either belt or gearing, by simply slipping either of small gears into gear in feed rod. The entire length of carriage has solid

Crushing and Grinding Machinery.

Less than 40 years ago the methods employed in reducing ores, rock and similar material to a size suitable for further treatment, were very crude. The work was usually done by hand with sledges, in connection with blasting. One of the first appliances used on the Pacific coast in gold mining operations consisted of a very heavy weight, which was raised by cams to a height of four or five feet, and then dropped upon the rock to be crushed. The rock was placed on the face of an anvil surrounded by a grating, through which the finer pieces fell, while the coarser pieces were replaced on the anvil and again subjected to the hammer. This was effective, but very slow work. The capacity of an

sidered what an important part this class of machinery plays in mining operations of all kinds, as well as in preparing ochres, clay, cement, lime, mineral paints, etc., for further manipulation into their various commercial forms. This is equally true in the manufacture of fertilizers, which is now an important and growing industry in the South. A mill that is described as strongly and compactly built and designed especially for grinding and pulverizing phosphates, ochres, clays, cement, lime, mineral paints, oil cake, fertilizers, drugs, etc., is the Williams' disintegrator and pulverizer, as shown by the accompanying cut.

It is being used at St. Louis, Mo., Louisville and Paducah, Ky., and other places, and is said to be giving very satisfactory results. Milton F. Williams & Co., 2705 and 2707 N. Broadway, St. Louis, Mo., the manufacturers of this machine, will be pleased to furnish interested parties with a description in detail and any other information desired.

Special Rapid-Feed Flooring Machine.

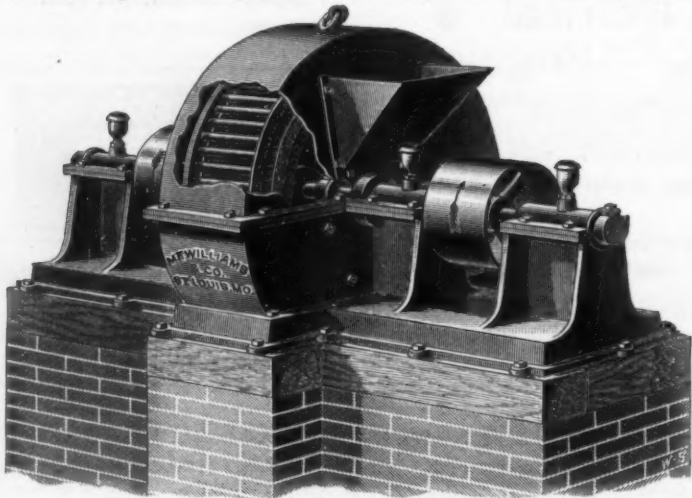
The above cut is taken from a photograph of the new heavy special rapid-feed

The workmanship employed in its construction is of the best, and at the same time the makers have taken special pains to provide the facilities to turn them out in large numbers, so that they are in a position, it is stated, to offer special low prices.

Each machine is thoroughly tested by actual operation before shipment, and guaranteed to be strictly as represented in every particular. It is arranged to plane and match four sides 14 inches wide and 6 inches thick.

Descriptive circulars and other information can be had by addressing the makers.

An unusually attractive pamphlet, printed in colors, has been issued by Messrs. J. W. Penfield & Son, manufacturers of clay-working machinery, Willoughby, Ohio. Illustrations and descriptions are given of brick machines, ground plans for brick works, brick barrows, dumping tables, moulds, clay-cars, etc. Many improvements have been made to their machines since their previous catalogue was published, and this new one is designed to cover these. Messrs. Penfield & Son make a specialty of furnishing complete outfits, including brick machine, pug mill, crusher



WILLIAMS'S DISINTEGRATOR AND FINE PULVERIZER.

bearings on V's, and is gibbed its full length to outside of bed.

All screws and small gears are made of steel.

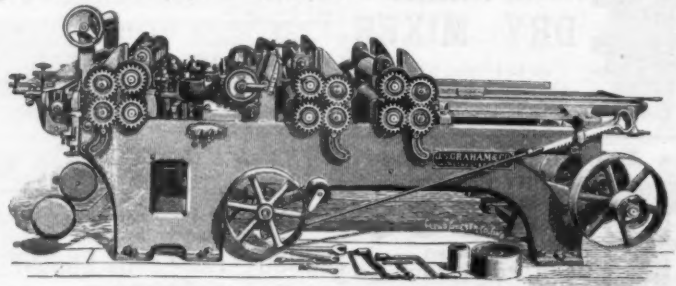
This lathe is furnished with plain tool block, back gears, power cross-feed, screw-cutting apparatus to cut nearly all threads from 2 to 18, center-rest, follow-rest, large and small face-plates. Compound-rest and

appliance of this description, weighing one ton, was only one ton of quartz rock per hour.

Many important changes and improvements have been made in crushing and breaking all mineral ores and rocks since that time. This was a necessity, and at the present day there are various styles and makes of grinding and crushing machines

flooring machine recently brought out by J. S. Graham & Co., of Rochester, N. Y. It combines a large number of attachments, and some advantages are claimed for it which were never before offered to the trade. This machine is the result of careful study, observation and experience on the part of the manufacturers.

or disintegrator, mould sander, repress, clay-cars, iron dry-cars, line shafting, etc., and will be pleased to furnish estimates upon application. If you are in the market for clay working machinery of any kind, either stiff or soft-clay process, they ask a chance to figure with you, and say that they will guarantee satisfaction.



SPECIAL RAPID FEED FLOORING MACHINE.

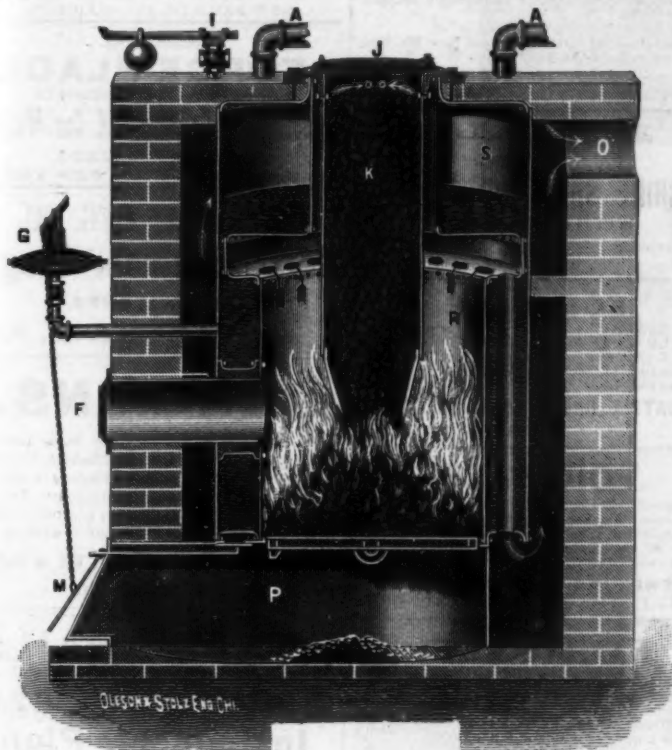
A Patent Steam-Heating Boiler

The use of steam for warming buildings has become so well understood that during the past few years it has made rapid advances into public favor.

Supplanting the unsightly stove with its ashes and dirt, uneven heat and danger of fire, and also the fire-place, although it is

is stated, insuring equal expansion and durability. In the center is placed a magazine for holding a supply of hard coal, sufficient for 24 hours, except in extreme cold weather, thus insuring a continuous heat night and day.

Aside from filling the magazine and shaking the grate once a day, there is little for the coachmen or cook to attend to, as



PATENT STEAM-HEATING BOILER.

a valuable auxiliary for ventilation, yet it could not be depended on for warming purposes.

It may be asserted, without fear of contradiction, that many of the causes of the illness that exists in this country in the winter arise from improper warming and defective ventilation; therefore nothing connected with our homes deserves more careful consideration than the supplying of them with warm, pure and fresh air during this season of the year, and every well-informed, prudent man will employ all available means to secure that end.

An apparatus for warming a building should always have for its object, the health as well as the comfort of its inmates.

That the former is sometimes overlooked or made but a secondary consideration, is obvious, and the fruits of such disregard are equally apparent to any one who will take the pains to observe them.

An economical system of warming which has met with approval whenever properly introduced, and which, it is believed, will effectively secure the two essential conditions necessary to health—a uniform temperature and pure air—and at the same time give the necessary power to distribute warmth throughout an extensive building is that of warming by the use of steam or hot water.

We present on this page an illustration of a patent base burning steam-heating boiler which has some points of excellence and for which strong claims well substantiated are advanced. As the steam generator is the foundation of a good steam-heating apparatus, it follows that persons who contemplate adopting this system of heating should choose one that has stood the test of time, also bearing in mind the statement that a low pressure boiler made of wrought iron and used exclusively for heating has never been known to explode.

By reference to the illustration it will be seen that its form is similar to the ordinary upright tubular boiler, except that the flues surround the fire-box in the water space and are entirely submerged, thus, it

the damper regulates its own draft to the fire, and can be left safely all night and day. The generator is enclosed in a manner which seems to preclude the possibility of fire.

First is two sheets of iron, then a space filled with water, then one with air and still another with brick. It is, therefore, considered that perfect safety in this regard can justifiably be claimed. The temperature of steam pipes is never higher than 235° Fahrenheit, while it requires 800° of heat to explode gunpowder or ignite punk.

To the generator is attached a sufficient

The following is of interest to parties about to put in heating apparatus.

In estimating the size of heater required the consideration of all the surrounding circumstances should not be overlooked, and in no case a heating apparatus that is too small put in. A boiler, one or even two sizes larger than actually needed, would be much more economical in fuel and would require less care and attention. Always be sure of ample radiation, as well as large supply and return pipes to insure free circulation, and whenever indirect radiation is used do not fail to have large registers. All persons intending to build should make contract for heating apparatus before work on the building is commenced, so that smoke, hot air and ventilating flues may be arranged for; also, so that anything pertaining to the apparatus that is necessary to go in during the construction of the building may be provided for.

Further information concerning this boiler can be obtained by addressing West & Branch, 1417 Main street, Richmond, Va.

No. 2 Sand-Belt Machine.

This machine is used for finishing all irregular forms of woodwork, such as spokes, neck-yokes, wagon and carriage gearing, handles, etc. Steel and iron can also be finished in the same manner by using an emery belt.

Its construction is described as follows:

The frame is made of hardwood neatly finished with shellac varnish. All the joints are mortised and tenoned and secured with draw bolts.

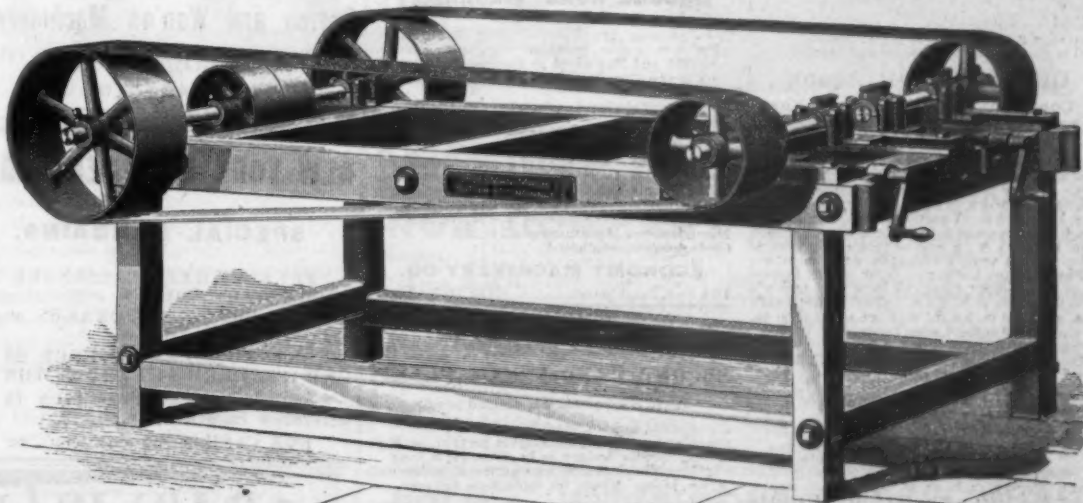
The idler pulleys (10x8) are independent of each other, and also have separate lateral adjustments to provide for the necessary tension of the belts. This movement is accomplished by the crank handles shown in front of the machine.

The shafts to which the pulleys are fastened are made of steel, and revolve in large self-oiling connected bearings.

The countershaft is fastened to the rear end of the machine, and all that is required in setting up is to secure it to the floor and connect it with the line of shaft.

Another feature is that the sand-belt pulleys are placed on the outside, which enables the operator to remove and replace his belts without loss of time.

With each machine is furnished two special cotton belts. The tight and loose pulleys are 10x5½ inches diameter, and



NO. 2 SAND-BELT MACHINE.

condensing-surface to dispose of all the steam that can possibly be made, and is in no danger of being shut off.

In point of safety from explosion this feature is said to be equivalent to letting the steam off into the open air as fast as generated. This, together with the automatic damper, makes, it is stated, a destructive explosion impossible.

should make 600 revolutions per minute.

For prices and additional information address the manufacturers, Cordesman Machine Co., 26 to 36 Butler street, Cincinnati, Ohio.

If you wish to keep posted on the progress of the South, read the MANUFACTURERS' RECORD. Price \$4.00 a year.

A New Wheel Jointer.

This cut represents the new wheel jointer for heading and shingles, with blower casing, as manufactured by the I. E. Merritt Machinery Co., of Lockport, New York.

Every wheel is bound with a wrought-iron band and has a ribbed bowl at the center, making it strong and safe for the speed at which it is designed to run.

The knives are provided with steel caps and wear equally their whole length, being clear shear cut from heel to point.

The table is adjustable for changing the angle at which the heading comes in contact with the knives.

The blower casing carries the refuse



NEW WHEEL JOINTER.

away from the machine and saves the operator from much inconvenience.

There are three sizes of these jointers, as follows: Three-foot wheel, with four 6-inch knives; floor space, 3½x2½ feet; speed of wheel, 800 revolutions per minute; tight and loose pulleys, 10 inches diameter by 4 inches face; power required, 1 to 2 horse. Four-foot wheel, with four 20-inch knives; floor space, 4½x3 feet; speed of wheel, 650 revolutions per minute; tight and loose pulleys, 16 inches diameter by 5 inches face; power required, 2 to 3 horse. Five-foot wheel, with six 22 inch knives; floor space, 6x3 feet; speed of wheel, 600 revolutions per minute; tight and loose pulleys, 18 inches diameter by 6 inches face; power required, 3 horse.

The five-foot wheel is cored, thus giving great strength with light weight. The number of knives in each wheel may be increased if so ordered at extra expense. For further information address the manufacturers.

Up Head of Class A

and still snapping our fingers.

MACHINERY

Is our Study.

We can show you how to belt up your energy to the ordinary silver dollar so as to bring your whole fortune into profitable activity.

But jokes aside, the very complete line of machinery agencies which we control is the result of ten years of careful select on among the best and most progressive manufacturers' American Machinery.

Do not content yourself with wondering if THE PENNSYLVANIA LIMITED has this or that machine. WRITE TO US

We have three warehouses filled with machinery for immediate delivery, and are confident we can save you money on any machinery purchase you may contemplate.

Engines, Horizontal. Turret Lathes.
Engines, Vertical. Fox Lathes.
Engines, Automatic. Boring Mills.
Boilers, Horizontal. Switch Planers.
Boilers, Vertical. Steam Hammers.
Engine Lathes, from 14 in. to 72 in. swing.
Drill Presses, from 18 in. to 30 in.
Planers, with quick return, from 18 in. to 76 in.
Crank Planers. Hoisting Engines.
Crank Shapers. Pumping Engines.
Friction Shapers. Steam Pumps.
Milling Machines. Feed-Water Heaters.
Cutting-off Machines. Grinding Machinery.
Screw Machines. Emery Wheels.
Bolt Cutters. Chucks and Face Plates.
Belting and Lacing. Waste by the Bale.
Wood Mortisers. Wood Tenoners.
Moulding Machines. Matching Machines.
&c., &c., &c., &c., &c.

In fact, everything in the way of Machinery for Motive Power, and for working in Iron or Wood. Correspond freely with us.

PENNSYLVANIA MACHINE CO., LIMITED.

31 N. Seventh Street, Philadelphia, Pa.

(Successors to H. B. Smith Machine Co., Phila.)

POWERFUL

Rolling Mill Engines

Of the best construction and in first-class condition; also

BOILERS, ROLLS, SHEARS, Etc.

AT A BARGAIN.

30x72 Corliss, 600 horse-power.
26x60 Corliss, 400 horse-power.
24x30 Corliss, 300 horse-power.
21x36 Corliss, 275 horse-power.
34x30 Buckeye, 500 horse-power.
21x48 Brown, 200 horse-power.
24x36, 10x16, 10x12 Slide Valve.
25 horse-power Electric-Light Engine.
480 horse-power Steel Boilers.
190 horse-power Boiler.
13 horse-power Locomotive Boiler.
1 Cam-ron Pump, 5x8. 1 Dean Pump, No. 7.
1 Faughar Double Circular Saw Mill.
1 Alligator Shears, 30-in. blade.
1 each 12, 16 and 18 in. Trains of Rolls.
Sturtevant Blowers, Scales, Water Boilers.
All in good condition. Come and examine.

GEO. M. CLAPP, Agent,

74 Cortlandt Street, New York.

MACHINERY IN STOCK.

ENGINE LATHES.—63 inches x 22 feet; 56 in. x 18 ft.; 50 in. x 20 ft.; 48 in. x 18 ft.; 42 in. x 12 ft.; 32 in. x 12 ft.; 29 in. x 15 ft.; 24 in. x 28 in. x 20 ft.; 1 each 24 x 10 ft., 12 ft. and 16 ft.; 1 each 17 in. x 6 and 8 ft.; 1 each 16 in. x 6, 8 and 10 ft.; 1 each 14 in. x 6 and 8 ft.; 6 12 in. x 5 ft.; 2 each 11 in. x 4 and 5 ft.; 2 each 10 in. x 4 ft., power or foot-power; 1 16 in. x 6 ft., 15 in. x 6 ft., 14 in. x 5 ft. Fox Monitor Lathes; 1 15 in. x 6 ft. Square Arbor Fox Lathe; 1 each 12 in. x 5 ft., 14 in. x 6 ft., 15 in. x 6 ft., 16 in. x 6 ft. Turret Lathe; 1 each 14 in. x 6 ft., 16 in. x 6 ft., 18 in. x 6 ft. and 8 ft. 21 in. x 8 and 10 ft. Engine Lathe Taper.
1 Iron Planer, 16 in. x 16 in. x 3 ft.
1 Planer, 20x20 in. x 4 ft. and 22x22 in. x 5 ft.
1 " 24x24 in. x 5 ft. and 6 ft.
1 " 30x30 in. x 6 ft.
1 " 32x32 in. x 10 ft. 42x36 in. x 12 ft.
1 " 36x36 in. x 10 ft.
1 " 72x60 in. x 15 ft. and 50x50 in. x 17 ft.
1 " 30x30 in. x 9 ft., with one head.
1 " 42x42 in. x 13 ft., with two heads.
Friction Shapers, 15 in., 22 in., 30 in.
Crank Shapers, 12, 16, 17, 20, 24 in. adj. stroke.
1 each Nos. 1, 2, 3, 4 Wire Feed Screw Machines.
1 each Nos. 5 to 8 Screw Machine. Power Feed.
1 each 2, 3, 4 and 6 Spindle Gang Drills.
1 Crank Planers, 12 No. 2 Lincoln Pat. Millers.
1 each Nos. 57, 52 and 53 Ferracute Presses.
1 No. 3 Stiles & Parker Geared Press.
1 No. 2 1/2 in. Fowler Press. 10 Foot and Power.
1 No. 1 Bliss Foot Presses. [Presses].
12 Punching and Shearing Machines, assorted.
1 Bolt Cutter, each 1/2 to 1 in. and 1 1/2 to 3 in.
1 36 in. Gear Cutter.
1 each 48, 60 and 72 in. Radial Drill.
1 New Horizontal Boring Machine with facing attachment. Newark Mach. Tool Co., makers.
1 48 in. Gear Cutter. 1 Power Mortising Machine.
1 50 in. Pulley Lathe. 2 Profiling Machines.
1 10x12 in. Valley Automatic Engine.
1 36 in. Upright Drill. 3 Cam Cutters.
Send for List of New and Second-Hand Machinery.

PRINTING TOOL & SUPPLY CO.
P. O. Box 8348. 135 Liberty St., New York.

NEW TOOLS

For Immediate Delivery.

ENGINE LATHES, 14 to 38 in. swing.
SHAPERS, crank and Geared.
DRILL PRESSES, 20 to 40 in. swing.
PLANERS, MILLING MACHINES, TURRET, FOX and SPEED LATHES.
PULLEY LATHES, PUNCHES, Etc.
Write for complete lists.

LODGE & DAVIS MACHINE TOOL CO.

WORKS, CINCINNATI, O.
Eastern House, 64 Courtlandt Street, New York.
W. Stern House, 65 & 70 S. Canal St., Chicago.
Store—S. E. Cor. Water & Market Sts., Pittsburgh.
Boston Office, No. 28 and 29 Purchase Street.
See list of Second-Hand Tools next issue.

SECOND-HAND MACHINERY ON HAND.

Planer planes 54 in. wide, 24 1/2 ft. long, 2 heads, Betts Machine Co.
Planer, planes 72 in. wide, 12 1/2 ft. long, 2 heads, L. W. Pond Machine Co.
Planer, planes 36 in. wide, 10 ft. long L. W. Pond. Planer, planes 30 in. wide, 8 ft. long, D. W. Pond. Planer, planes 37 in. wide, 8 ft. long, Harrington. Planer, planes 30 in. wide, 5 ft. long, Cove M. Co. Planer, planes 24 in. wide, 6 ft. long, Harris.
Planer, planes 24 in. wide, 5 ft. long, L. W. Pond. 1 Planer, 24 in. wide, 4 ft. long, L. W. Pond. New 1 Planer, 24 in. wide, 5 ft. long. " " 1 Planer, 24 in. wide, 6 ft. long. " " 1 Planer, 28 in. wide, 6 ft. long. " " 1 Planer, 32 in. wide, 8 ft. long. " " 1 Gap Engine Lathe, 28 in. swing over shears, 56 in. swing in gap, 26 ft. bed, English make.
Engine Lathe, 34 in. swing, 21 ft. bed. Putnam. Engine Lathe, 24 in. swing, 20 ft. bed with three tool shafting rests. D. W. Pond.
Engine Lathe, 18 in. swing, 6 ft. bed, Sheppard. Engine Lathe, 16 in. swing, 8 ft. bed, Wheeler. Engine Lathe, 15 in. swing, 8 ft. bed, Porter. 4 Engine Lathes, 20 in. swing, 8 ft. bed, Ames. Shaping Machine, 9 in. stroke, New Haven. Upright Drill, 30 in. swing, b. g. & s. f., Hawes. Upright Drill, 28 in. swing, Putnam Mach. Co. Bolt Cutting Machine, 1 1/2 in. Wm. Sellers & Co. Bolt Cutting Machine, 1 1/2 in., Schlenker. Slotting Machine, 9 in. stroke, New Haven Co. Pipe Cutting Machine, 4 in., Morris, Tasker & Co. 30 in. Boring Mill. Large Index Milling Machine. Two Double Stay Bolt Cutters, Bement. 1 28 in. Upright Drill, b. g. & s. f., Snyder. New. 1 36 in. Upright Drill, b. g. & s. f., Snyder. New. 1 Pillar Shaper, 16 in.
1 Horizontal Engine, 10 in. cylinder, 14 in. stroke. 1 Engine, upright, 6x7 in. N. Y. Saf. St. Pow. Co. 1 Engine, upright, 8x9 in. McIntosh & Seymour. 1 Engine, horizontal, 6x10 in. Rice Automatic. 10 horse-power Westinghouse Engine. 1 15 Horse-Power Upright Boiler.

GEORGE PLACE,

No. 120 Broadway, NEW YORK.

SECOND-HAND MACHINERY.

1 Planer, planes 9 ft. long, 36 in. x 36 in. 1 " 8 ft. 30 in. x 30 in.
1 Planer, planes 6 ft. long, 44 in. wide.
1 Planer, planes 6 ft. long, 42x24 in.
1 Planer, planes 5 ft. long, 42x24 in.
1 Engine Lathe, 14 ft. bed, 32 in. swing.
1 Engine Lathe, 18 ft. bed, 24 in. swing—chuck.
1 Engine Lathe, 10 feet bed, 25 inch swing.
1 Engine Lathe, 9 ft. bed, 18 in. swing. chuck.
1 20 inch Plain Drilling Machine.
1 15 in. Crank Shaper.
1 16 in. Stevens' Pulley Lathe.
1 9 inch Hewes & Phillips Shaper.
1 45 in. Vertical Boring Mill.
1 Automatic Rack-Cutting Machine.
1 General Bar Iron Shears, cuts 4x1 1/2 in.
1 11 ft. 24 in. Stover Dimension Planer.
Send for list Second-hand tools.

NEW YORK MACHINERY DEPOT,
Brooklyn Bridge Store, 16, New York.

Second-Hand Machinery

FOR SALE.

Woodworking Machinery—3 3/4 in. Band Saws. Fay 6 in. 4-side Moulder. Fay 24 in. Planer, Stepten and McParlin 26 Endless Bed Planer, 2 Rip and Cross-cut Saw Tables, Axe Handle Lathe.
72x18 Steel Tubular 64 4-in. tubes complete; used 20 months.
25 H. P. Fire Box Boiler, 34 3-in. tubes complete. Stationary Tubular, 11x24, complete.
Two-Flue Boilers, 20x40, 24x44, 24x48, complete. Engines 10, 12, 16, 20, 25, 30, 40, H. P. complete Steam Pumps, Shafting, Pulleys, Hangers, Belting, Ingersoll No. H Rock Drill.
Iron Planers 20 in. x 12 in. x 5 ft. and 30x36x7 ft. Miscellaneous Machinery of all kinds.
Correspondence solicited.

ECONOMY MACHINERY CO.

104 East Pearl Street, CINCINNATI, O.

FOR SALE.

SECOND-HAND STEAM PLANT,

All in good condition, divided to suit.

One Corliss Engine, 25x48 in., 300 H. P.
One Condensing Corliss Engine, 30x72 in., 600 H. P.
Three Tubular Boilers, 72 in. dia. m. 17 ft. long.
All the above can be seen at Davol Mills, Fall River, Mass. Ready for immediate delivery.

ROBERT WETHERILL & CO.
CHESTER, PA.

FOR SALE.

1 6-Roll Single Surface Planer and Matcher. \$275
1 4-Roll Single Surface Planer and Matcher. 200
1 Fay Power Mortiser with Boring attachm't 135
1 Lane & Bodley Railway Cut-off Saw, large 70
2 Fay & Co. No. 8 14-inch 6-Roll Fast Feed Flooring Machines, each..... 500
1 Rogers & Spindle Shaper Wood Tap..... 65
1 Scroll Saw..... 60
1 14-inch Centrifugal Pump..... 60
1 No. 6 Sturtevant Blower, with counter..... 85
1 Colburn 2 Spindle Blend Boring Machine. 35
1 24-inch Double Surfer, with counter..... 350

JAMES JENKS,
109 Jefferson Avenue, DETROIT, MICH.

MACHINERY (Second-Hand)

Hendey Shaper, 15-in. stroke. At order.
New Haven Planer, 30x40x8 ft. Good order.
B-tts Planer, 76 in. (widened from 54 in.), 54 in. high, 25 ft. long, auto feeds. Good order.
Pratt & Whitney Drill 2-in. swing. Good order.
Garvin Gang Drill 1, three-spindle. Good order.
New Haven Engine Lathe, 25 in. x 12 ft. Fair order.
Browne & Sharpe Screw Machine, No. 1, complete, with wire feed. At order.
Browne & Sharpe Screw Machine, large size, with chasing bar and spring chuck complete. At order.
Profiling Machine, regular two-spindle pattern. Good order.
Sellers Bolt Cutter, 1 1/2 in. Good or'er.
Large stock of latest improved New Machine Tools; also Boiler-Makers' Tools.

J. J. McCABE,
68 Cortlandt St., NEW YORK.

FOR SALE.

ALL OR PART OF

MACHINE SHOP AND FOUNDRY

WITH GAS WELL.

ADDRESS A. R.,
Care this paper.

FOR SALE

AT A BARGAIN. The entire Machinery of the BATTLE CREEK KNITTING CO. A COMPLETE OUTFIT in an excellent location for the manufacture of Hosiery. Will be sold with or without the plant.

BATTLE CREEK KNITTING CO.
BATTLE CREEK, MICH.

FOR SALE.

Wagon Skein and Long Arm Axle Plants.
Patterns, Flasks, Machinery and Tools for manufacturing Wagon Thimble Skeins.
Also for manufacturing Wagon Axles.
Particulars on application.

THE JAS. L. HAVEN CO.
No. 57 Plum Street, CINCINNATI, OHIO.

FOR SALE.

20 36-inch Top Flat Self-Stripping Cards.
1 Denn Warming Machine, 206 ends, nearly new.
7 Bobbin Winders. Bands work in Grooved Pulleys. Overhead Creels.
2 New and 2 Second-hand Yarn Reels.

M. CAMBRILL & CO.

BANK, CECIL CO., MD.

FOR SALE.

CORLISS ENGINE

Diameter of Cylinder, 14 inches; Length of Stroke, 30 inches. Used about three years; good as new; can be seen running.

GEORGE PLACE,

120 Broadway, New York.

FOR SALE.

A 60 HORSE-POWER IDE AUTOMATIC ENGINE and 70 HORSE-POWER BOILER complete with fittings and stack; also ONE 750-LIGHT DYNAMO and ONE 30-LIGHT INCANDESCENT. All as good as new.

W. R. POLK, JR.

128 Marietta Street, ATLANTA, GA.

SECOND-HAND

Cotton and Woo'en Machinery

Of every description bought, sold and exchanged. Catalogues issued quarterly.

O. B. ARNOLD,

86 Washington Street, CHICAGO, ILL.

NEW YORK EQUIPMENT CO., 15 Wall Street, New York,

SPECIAL BARGAINS. SOUTHERN DELIVERY.

FOUR 8-WHEEL PASSENGER TYPE LOCOMOTIVES built by BROOKS LOCOMOTIVE WORKS, weight about 48 TONS, Cylinder 17 x 24 inch., have WESTINGHOUSE AIR BRAKES, and other useful extras. They are very superior engines.

ONE HUNDRED 34 FEET 20 TON VENTILATED BOX CARS, and ONE HUNDRED 34 FEET 20 TON FLAT CARS, with Gould couplers.

Engines and Cars have been in use only a few months, and can be delivered immediately.

FOR CASH, or on easy terms, on the CAR TRUST PLAN.

SEND FOR CATALOGUE

OLD & NEW RAILWAY EQUIPMENT

A. S. MALES & CO.

CINCINNATI, O.

FOR SALE. RAILS, SPIKES, FASTENINGS, FROGS, SWITCHES AND CROSS-INGS, LOCOMOTIVES, DUMMIES, CARS, WHEELS and AXLES.

Complete Outfits for Logging Roads and Street Railways. New and Second-hand.

WILLIAM MINNIGERODE, Dealer in Railway Supplies,
Lynchburg, Va.

RAILS--Selected

SECOND-HAND.

45 tons 16-lb. Steel. 35 tons 20-lb. Iron.
125 tons 20-lb. Steel. 25 tons 30-lb. Iron.

Suitable for Southern or Western Delivery.
Above owned and offered by

ROBINSON & ORR,

Pittsburgh, Pa.
NEW RAILS OF ALL WEIGHTS.

Established 1855.

GEORGE PLACE,

Late the George Place Machinery Co.

Equipment of Railway and Car Works

EQUITABLE BUILDING.

120 Broadway, NEW YORK

CARLISLE MFG. CO.

Cars, Engines, Frogs

AND SWITCHES,

CARLISLE, PA.

BARGAINS.

Standard Gauge Locomotives, 60,000 pounds weight, Sand Crushers, Rock Crushers, Cornish Rolls, Thirty-six Second-hand Engines in perfect order, Locomotive Boilers, Horizontal Return Tubular Boilers, Upright Boilers practically new. If you need Machinery it will pay to write us.

CHESTER BERTOLETTE & CO.

NORRISTOWN, PA.

STEEL RAILS

And Track Material complete for Logging and Mining Roads and Industrial Enterprises on the

Instalment Plan.

Payment, cash margin 25 per cent., balance monthly for 24, 36 or 60 months. Also

Locomotives and Cars

On same terms. Second-hand Rails purchased.

The STEEL RAIL SUPPLY CO.

HUMPHREYS & SAYCE, Mgrs., 10 Wall St., New York.

We have no Agents.

FOR SALE

SECOND-HAND PLANERS. Good Condition.

1 Iron Planer, 42x42 in. x 12 ft., Double Head, Miles
1 Iron Planer, 36x30 in. x 16 ft., Wm. Sellers & Co.
1 Iron Planer, 36x36 in. x 10 ft., Frederic Miles.
1 Iron Planer, 30x30 in. x 25 ft., Wm. Sellers & Co.
1 Iron Planer, 30x30 in. x 7 1/2 ft., Wm. Bishop.
1 Iron Planer, 24x24 in. x 6 ft., Wm. Bishop.
1 Iron Planer, 22x22 in. x 5 1/2 ft., Frederic Miles.
1 Iron Planer, 20x20 in. x 5 ft., Wm. Sellers & Co.
1 Iron Planer, 16x16 in. x 3 1/2 ft., Frederic Miles.
1 Iron Planer, 16x16 in. x 2 1/2 ft., Wm. H. Barr.
2 Iron Planers 16x16 in. x 2 ft., R. A. Belden & Co.

STEAM HAMMERS.

2 60-lb. Steam Hammers. Frederic Miles.
1 80-lb. Steam Hammer. Frederic Miles.
1 250-lb. Dead Stroke Hammer. Justice & Shaw.

L. F. SEYFERT'S SONS,

No. 437, 439 441 N. Third St., Philadelphia, Pa.

TRADE NOTES.

THE Triumph Compound Engine Co., of Cincinnati, Ohio, is in receipt of a very flattering letter from the Commercial Gazette (Cincinnati) regarding the work of one of the Triumph Co.'s engines, which is being used for running a type-setting machine on the fifth floor of the Commercial Gazette Building.

A LUMINOUS lithograph in colors, charmingly and harmoniously blended, comes from the Lodge & Davis Machine Tool Co., of Cincinnati, Ohio, builders of iron, steel and brass-working machinery. With chivalrous judgment the central figure of this work of art is a head study of a typical American beauty.

THE contract for the Gainesville, Fla., water works has been awarded to Hartford, Herbert & Co., of Chattanooga, Tenn. The steam pumping machinery will be furnished by the Laidlaw & Dunn Co., of Cincinnati, Ohio; it will have a capacity of 2,500,000 gallons. In addition to this order the Laidlaw & Dunn Co. have recently received contract for the steam pumping plant for elevators, house service and boiler feeding for the Equitable Building, in Atlanta, Ga., which, when completed, will be one of the finest buildings in the South. The aggregate capacity of these pumps will be 11,000,000 gallons in 24 hours. Two of these pumps will be 14 and 20x12x18 compound duplex.

A Great Improvement In Electric Motors.

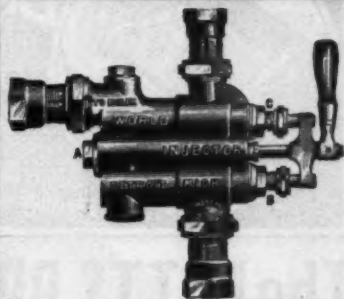
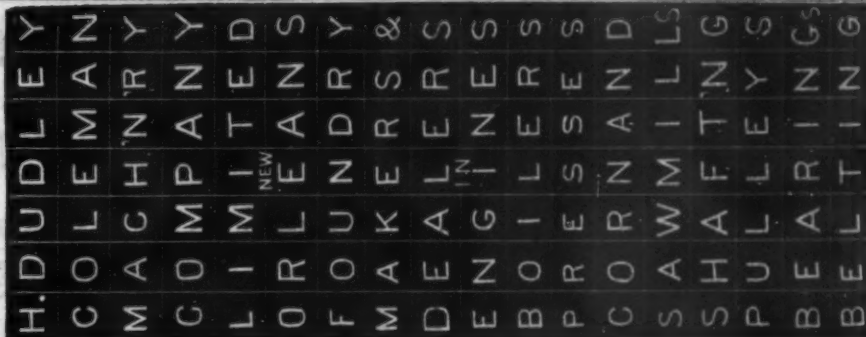
A most severe and very interesting test was made a few days ago by William Sellers & Co., of Philadelphia, upon a motor operated under the new principle invented by Mr. H. Ward Leonard. The motor used was a 10 horse-power standard shunt-wound Sprague motor; the motor's normal speed was 1,500 revolutions a minute. The motor was belted to a countershaft, and upon the countershaft was placed a brake, and in addition to the brake there was placed on the countershaft a large fly-wheel, such as is used upon punching machines, the purpose of the fly-wheel being to duplicate the inertia and momentum met with in practice in a great many kinds of work.

The motor was made to operate in either direction at any rate of speed desired, and it was found possible to run the motor perfectly and regularly under the full brake-load at 15 revolutions per minute—that is, one per cent. of its full speed. While operating at full speed in one direction the motor could be instantly reversed, the reversal being perfectly gradual and entirely without spark or troublesome feature of any kind.

In order to get the most marked effect in overcoming the momentum of the fly-wheel the brake was taken off, and when the fly-wheel was running at its full speed of 300 revolutions a minute the motor was reversed instantly. In 13 seconds the motor had brought the fly-wheel to rest, and in 13 seconds more had it running at full speed in the opposite direction, the entire operation being effected with the greatest smoothness and without any spark whatever. The performance of the motor was extremely satisfactory to all concerned, and showed its perfect adaptability to any class of work met in practice.

We learn from H. Ward Leonard & Co. that among the concerns of importance who have recently retained them as consulting electrical engineers are William Sellers & Co., the well-known machine tool builders, of Philadelphia; Otis Bros. & Co., of elevator fame, and the Ingersoll-Sergeant Drill Co.

No large manufacturing or mining con-



WHOLESALE AGENTS:
RUMSEY & SIKEMEIER, St. Louis, Mo.
THE AHRENS & OTT MFG. CO., Louisville, Ky.
MILNER & KETTIG, Birmingham, Ala.

THE BEST INJECTORS IN USE.

Adapted for All Conditions. High or Low Steam. Long Lift or Short. Water Works Pressure or Tanks. It Always Works.

It is the EASIEST TO HANDLE, being

OPERATED ENTIRELY BY A SINGLE LEVER.

Each Injector is carefully tested before leaving the factory and is

GUARANTEED RELIABLE

AMERICAN INJECTOR CO., Manufacturers,
DETROIT, MICH.



CORN and FEED MILLS

WITH FRENCH BUHR AND ESOPAS STONES.

Capacity 6 Bushels to 75 Bushels Per Hour

ROLLER MILLS

FOR FLOURING MILLS

Capacity from 20 to 100 barrels per day.

Mills for Grinding PHOSPHATE ROCK.

WATER WHEELS, SHAFTING, PULLEYS, HANGERS, ETC.

MUNSON BROS., UTICA, N. Y., U. S. A.

THORNBURGH & GLESSNER, 110-112 S. JEFFERSON STREET, CHICAGO, ILL.

OFFICE AND SALESROOM:



MILL and ELEVATOR

Supplies and Equipment.

ELEVATORS, FLOUR AND CORN MILLS, COTTON SEED MILLS, Etc., Fully Furnished and Equipped Throughout.

Steel Screw Conveyor.



PHOSPHATES, COAL and MINERAL SPECIALTIES.



cern whose product involves the use of power can afford to neglect the rapid progress of electrical motor applications.

H. Ward Leonard & Co. charge a definite sum per year for their services as consulting engineers, and the manufacturing concerns seem to like this feature of definiteness rather than a percentage charge or a retainer and individual charge for individual service.—Colliery Engineer.

The B. & O. Southwestern Limited.

On November 20 the Baltimore & Ohio Railroad placed in service on its Southwestern Limited Express train running from Baltimore and Washington to Cincinnati and St. Louis an entirely new equipment built expressly for this train by the famous Pullman Co. The new cars embrace all the features that have rendered the Royal Blue Line trains so universally popular, and include the safety vestibule, steam heat, Pintsch gas-light, the anti-telescoping device and convenient toilet accessories for men and women. The train leaves Baltimore daily at 2.30 P. M., arrives Cincinnati next morning at 7.45, and St. Louis at 6.25 next evening. The entire train runs through from Baltimore to Cincinnati, and the sleeping-cars run through to St. Louis.

AMERICAN BRIDGE AND IRON COMPANY

ENGINEERS: CHAS. C. WENTWORTH.
JOS. L. HUNTER.

Also, MACHINISTS AND FOUNDERS

DESIGNERS AND BUILDERS of IRON and STEEL BRIDGES and VIADUCTS for HIGHWAYS and RAILROADS, IRON FURNACE PLANTS.
ROANOKE, VIRGINIA.

Heffernan Stained Glass Works,

WM. A. HEFFERNAN, PROPRIETOR

LYNCHBURG, VA.

ECCLESIASTICAL, MEMORIAL AND DOMESTIC ART GLASS.
WHITE FOR PRICES.

COLD DRAWN

FITZSIMONS & CO. Manufacturers

SHAFTING

CLEVELAND, OHIO.

IRON STEEL



Improved Screw Cutting FOOT and POWER LATHES

Drill Presses, Shapers, Band, Circular and Scroll Saws, Machinists' Tools and Supplies. Lathes on trial. Catalogue mailed on application.

THE SEBASTIAN-MAY CO.
100-106 Highland Ave., Sidney, Ohio.



THE WASHINGTON HYDRAULIC PRESS BRICK CO.

MANUFACTURERS OF AND DEALERS IN

Ornamental, Pressed, Rock-Faced and Roman Brick

IN RED, BROWN, BUFF, GRAY AND OLD GOLD COLORS.

BRICK FOR ARCHES

GROUND TO ANY RADIUS.

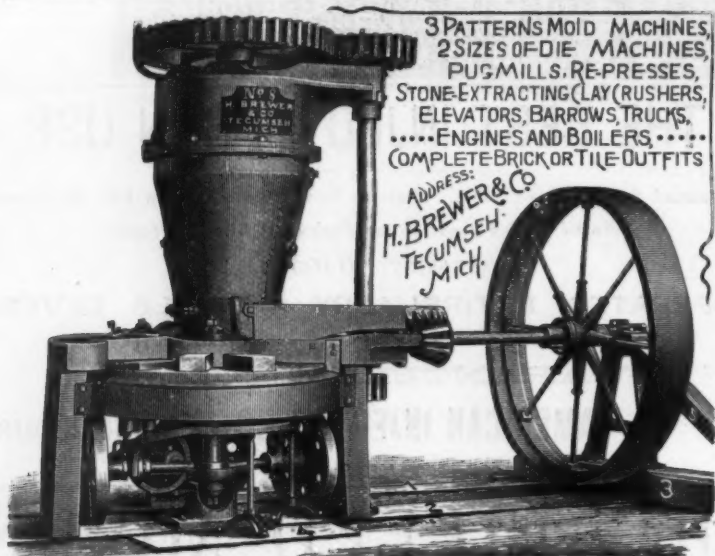
AGENTS FOR RICKETSON'S

MILWAUKEE MORTAR COLORS.

RED, BLACK, BROWN, BUFF

Correspondence
Solicited.

OFFICE, KELLOGG BUILDING, WASHINGTON, D. C.



3 PATTERNS MOLD MACHINES,
2 SIZES OF DIE MACHINES,
PUG MILLS, RE-PRESSES,
STONE-EXTRACTING (LAY) CRUSHERS,
ELEVATORS, BARROWS, TRUCKS,
... ENGINES AND BOILERS, ...
COMPLETE BRICK OR TILE OUTFITS

ADDRESS:
H. BREWER & CO.
TECUMSEH,
MICH.

LATEST IMPROVED BRICK MACHINERY
RAYMOND'S PATENTS
DUMPING CARS. RE-PRESSES.
PORTABLE TRACK. IRON CARS.
HOISTING DRUMS. TURN TABLES &c.
SEND FOR CATALOGUE
E. W. Raymond & Co.
Dayton, Ohio.

The POTTS BRICK MACHINES

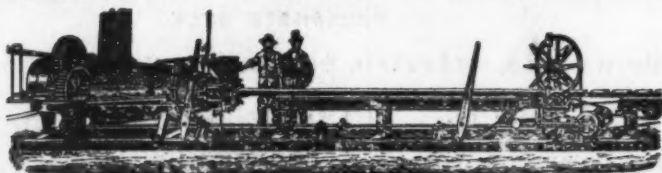
MANUFACTURERS OF

Horizontal Stock Brick Machine, Disintegrators, all sizes, Mold Sander, Pug Mills and Elevators.

We always carry a large stock of Brickmakers' Supplies, as Molds, Tracks, Barrows, Dump Cars, Winding Drums, Kila Doors, Grate Bars, Shafting, Pulleys, Belting, &c.
Complete Outfits a Specialty. Write for catalogue (D).

C. & A. POTTS & CO., Indianapolis, Ind.

Chambers' Brick Machinery



15,000, 25,000, 50,000 per day Capacity.

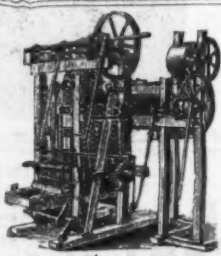
GUARANTEED AND FURNISHED ON THIRTY DAYS' TRIAL.

CHAMBERS BROS. CO., Philadelphia, Pa.

Henry Martin Brick Machine Mfg. Company,



OUR FIREPROOF
Steam Brick Dryers
are
SIMPLE, CHEAP AND SUCCESSFUL.
Plans, Specifications, &c., will be
Furnished on Application.



WRITE US.

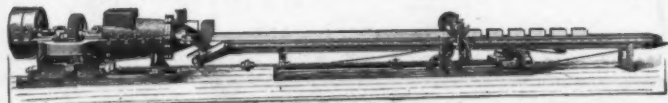
Plans, Specifications, &c.
on our
Brick Yard Outfits
and
Brick Yard Supplies in General.



Send for Catalogue.

LANCASTER, PA

Penfield Brick Machinery.



DISINTEGRATORS, CRUSHERS, PUG MILLS, &c.

Complete Outfits of any Capacity a Specialty.

Satisfaction Guaranteed.

Send for Circular No. "B."

Address

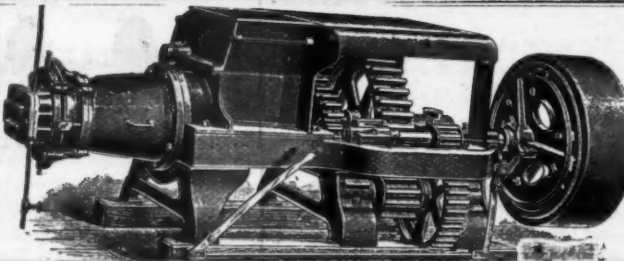
J. W. PENFIELD & SON, Willoughby, Ohio.

Send for Illustrated Catalogue.

Mention Manufacturer's Record.

P. L. SWORD AND SON.
COMPLETE OUTFITS
FOR
PAVING AND BUILDING
BRICK PLANTS.
535-547 ABBEY
& 349 COLUMBUS STS
CLEVELAND, O.
U.S.A.

"OHIO" BRICK AND TILE
MACHINES UNEQUALLED.
Write for Catalogue
E. M. FREESE & CO.
GALLON, OHIO, U. S. A.



IMPROVED BRICK MACHINERY.

THE NEW QUAKER STANDS AT THE HEAD.

SIMPLE, DURABLE AND PERFECT IN ITS WORK.

Save money by corresponding with us before buying elsewhere. Send for illustrated catalogue. We make a specialty of Equipping Yards, both Horse and Steam-Power, in every detail.

FLETCHER & THOMAS,

Indianapolis, Ind.

Heartley Machine, Variety Iron Works,

Manufacturer of
PATENT SPECIALTIES
AND NOVELTIES.

Designer and Builder of

Machines and Tools for Special Work.

Patent Punches and Tools for Manufacturing
Iron Wheels Famous Roller-Power Weld-
ing Machine for Welding Tires
and all Special Work.



Power and Hand Punches and Shearing Machinery, Punches,
Dies, &c. Presses, Punches, Dies and Tools for Sheet-Metal
Workers. New Ideal Self-oiling Punch Chuck. Hub-boring
Machinery, Axle Box Presses, Drills and Tools, Tire Upsetters,
&c. Woodruff Eave Trough Hangers. Conductor Hooks, Ice
Tongs and Tools, Children's Carriage Springs and Axles, Seat
Springs and Raisers. Power Transmitting Pulleys, Shafting
and Hangers.

GEO. W. HEARTLEY, Proprietor, 432 St. Clair St., TOLEDO, O., U. S. A.

Also Manufacturer of MILL PICKS and STONE CUTTERS' TOOLS.

FACTORIES AND WAREHOUSES

Should be provided with our Corrugated or Plain
IRON OR STEEL SHUTTERS AND DOORS.

They are thus rendered fire and burglar-proof.

We are prepared to execute orders for this class of material promptly.
Send exact dimensions of openings.

The Cincinnati Corrugating Co.

Box 226.

PIQUA, OHIO

HOLTON IRON ROOFING
ROOFING SIDING CEILING & C.
NEW LISBON, O.
AGENTS WANTED EVERYWHERE

SYKES IMPROVED
Best Roof in the World.
Suitable for all classes of buildings.
Easy put on.
All my iron and steel is re-rolled and box annealed, well painted on both sides with the Best of Paint and Pure Linseed Oil.
SYKES IRON ROOFING CO., Niles, O., & Chicago, Ill.
Send for Circular and Price List, and mention this paper.

BERGER'S LOCK SEAM STEEL ROOFING
The BERGER MFG. CO., Canton, O.
DON'T make arrangements for ROOFING till you have seen ours.
It Exceeds all other Metal Roofs.

THE KANNEBERG ROOFING CO., Canton, O.
(THE ORIGINATORS OF STRICTLY GENUINE STEEL ROOFING.)

The Kanneberg Pat. Latest Improved, Folded Lock Seam Roofing.
MADE OF STRICTLY GENUINE STEEL, ALSO
CORRUGATED IRON (four sizes of corrugations), and
Crimped Edge Iron Roofing and Siding, Beaded Iron Siding and
Ceiling, Water-Proof Building Paper, Dry and Ready Mixed Paints,
etc. Write for Catalogues, Price-List and Samples.

The Long Steel & Iron Roofing Co.
(Successors to F. S. KEELY & CO.) Manufacturers of
Steel & Iron Roofing Corrugated Siding and Ceiling, Iron
Ore Paint, Cement, &c.
N. E. Cor. Illinois & Merrill Sts., Indianapolis, Ind
WRITE FOR CATALOGUE AND PRICE LIST.

J. H. ELLER & CO., Canton, Ohio,
MANUFACTURERS OF
STEEL ROOFING
CORRUGATED IRON, Crimped Edge Roofing and Siding,
Beaded Siding and Ceiling, Galvanized Steel Eave
Troughs, &c. Write us for prices and sample.
AGENTS WANTED. Address Office No. 222.

IMPERIAL BRAND
PREPARED ROOFINGS TWO and THREE PLY.
BUILDING PAPERS.

Rosin-sized and Waterproof Sheathings, Parchment Building Paper, Deadening Felts, Plain and Corrugated Carpet Linings, Imperial Asbestos-Roofing, Tarred Roofing Felts, Roofing Materials, &c.

ASBESTOS SHEATHING AND BUILDING FELTS, ASBESTOS STEAM PACKING, PIPE COVERINGS, ETC.
SEND FOR SAMPLE BOOK AND PRICES.

H. F. WATSON CO., Manufacturers, Erie, Pa. 407 Chamber Commerce, CHICAGO, ILL.

To Architects,
Builders
and Owners.
Attention is called to Fire-Proof and Vermin-Proof
MINERAL WOOL,
As a Lining in Walls and Floors for Preventing the
ESCAPE OF WARMTH AND THE DEADENING OF SOUND.
SAMPLE AND CIRCULARS FREE.
H. S. Mineral Wool Co., 2 Cortlandt Street, N. Y.

QUEEN CITY SUPPLY CO., PUGHITA, POND & CO. PROPRIETORS.
Nos. 161, 163 & 165 West Pearl Street, Cincinnati, Ohio.

Factory, Machine Shop and Mill Supplies.

Agent for B. F. Startevant Co., Blowers and Exhausts; Boston Belting Co., Rubber Goods of all kinds; Jewell Belting Co., Leather Belt; Jno. A. Roebbing's Sons, Wire Rope; Grant Corundum Wheel Co., Emery Wheels; Magnolia Metal Co., Magnolia Rabbitt Metal.

The CAMBRIDGE ROOFING COMPANY,

— MANUFACTURERS OF —

CROWL'S PATENT STEEL ROOFING

CORRUGATED IRON

METAL SHINGLES AND ROOFING PAINTS.

Also all Best Styles of Siding and Ceiling. Specially adapted for Cotton Gins, Compresses, Warehouses, Factories, and Mills.

Awarded First Medal by the New Orleans Exposition and elsewhere.

Send for Sample and Catalogue.

CAMBRIDGE, OHIO.

CHATTANOOGA, TENN.

IRON & STEEL ROOFING,
"GLOBE STANDING SEAM"
"EXCELSIOR V CRIMPED"
"READY ROLLED CAPPED"
"GLOBE IRON ROOFING & CORRUGATING CO., CINCINNATI, OHIO."

NILES IRON & STEEL ROOFING CO.
LATEST SIMPLEST NILES. O. CORRUGATED
AND CHEAPEST AGENTS WANTED. AND CRIMPED
CAP ROOFING. SEND FOR CATALOGUE ROOFING & SIDING.

SIMS PATENT
PATD JAN. 14TH 1890
The Sims Mfg. Co. NEWARK, OHIO.
The World's Favorite Adjustable Eave Trough.
No right or left hand in ordering our Trough. It is always Right and made from the Best Galvanized Sheet Steel and Copper, in 8-foot lengths. Write for Descriptive Circulars and Price-Lists. Special Discounts to Jobbers.

Waltham Emery Wheel Co. Manufacturers,
WALTHAM, MASS.
By our various processes we can guarantee satisfaction for the greatest variety of work.
EMERY WHEEL MACHINERY,
EMERY, CORUNDUM, Etc.
These wheels can be bought of our agents or ordered direct.

IRA DIMOCK, Pres. Established 1867. J. L. OTIS, Treas.
Northampton Emery Wheel Co.

Premium Solid Emery
AND
CORUNDUM WHEELS,
AND ALL KINDS OF
Emery Wheel Machinery.
LEEDS, MASS.
WESTERN BRANCH:
28 SOUTH CANAL STREET, CHICAGO, ILL.

MICHIGAN EMERY WHEEL CO.

194 Catherine Street, Detroit, Mich.

**Solid Emery and Corundum Wheels, to Run
Wet or Dry, Special Shapes.**

PERFECTION SAW GUMMERS.

SEND FOR PRICE LIST.

NORTON EMERY WHEEL CO.

MANUFACTURERS OF—

Complete Illustrated Catalogue mailed free upon application.



NORTON EMERY WHEEL CO.
WORCESTER, MASS.

**EMERY and
Corundum Wheels,
Emery Wheel Machinery**

AND NUMEROUS SPECIALTIES.

THOS. K. CAREY & BROS.

26 Light Street, Baltimore,

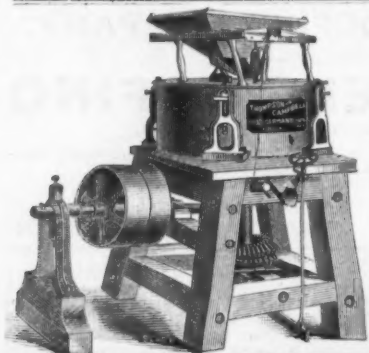
Southern Agents.

Write us **LATEST IMPROVED SLIP JOINT EAVE TROUGH,**

LONGEST IN THE WORLD, GOES TOGETHER EASILY, NO SOLDER REQUIRED. BEST CONDUCTOR, HANGERS, ETC.

MADE BY **THE CANTON STEEL ROOFING CO., CANTON, O.**

PAT'D
1889



Thompson & Campbell

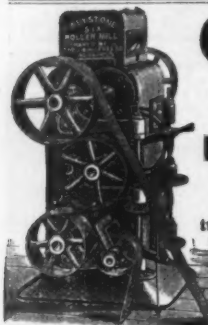
1022 to 1030 Germantown Avenue,

PHILADELPHIA, PA

UNDER PORTABLE MILL.

For Grinding Wheat, Corn, Oats and all kinds of Minerals.

With our Patent Stands, Balance Ryne and Gearing put on in our improved style. These Mills are furnished with Shoe or Silent Feeder, as preferred. The Stones are of the very best selected French Burr Old Stock Blocks or solid New Stock, whichever may be best for the material to be ground. The Mill is built in the most substantial manner.



CORN MILLS, FLOUR MILLS, HOMINY MILLS.

Our Corn Mill is especially adapted for South-
Meal. Send for circulars. We are manufac-
turing the largest line of machines made by any
one concern in the United States. All high-class
and warranted. Address

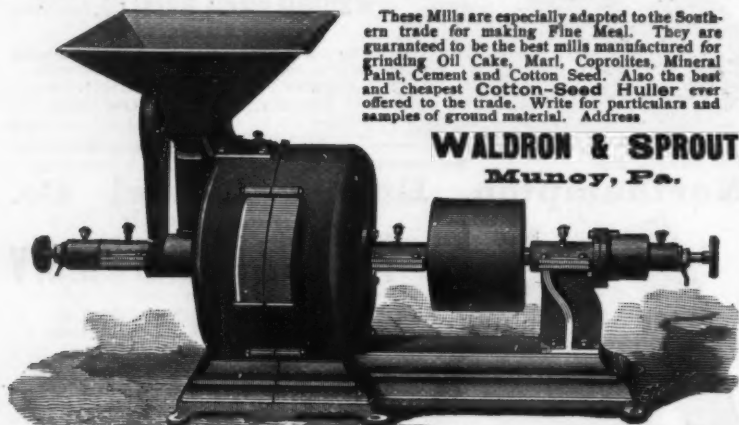
The J. B. ALLFREE MFG. CO.

78 to 86 Shelby Street, INDIANAPOLIS, IND. Four-Roller Wheat Mill.



The Keystone.

FRENCH BURR MILLS,



These Mills are especially adapted to the South-
ern trade for making Fine Meal. They are
guaranteed to be the best mills manufactured for
grinding Oil Cake, Meal, Coprolites, Mineral
Paint, Cement and Cotton Seed. Also the best
and cheapest Cotton-Seed Huller ever
offered to the trade. Write for particulars and
samples of ground material. Address

WALDRON & SPROUT,
Muncy, Pa.

Manufacturers of FRENCH BURR MILLS, FLOUR BOLTS, CORN MEAL SIEVES, WHEAT
SCOURERS AND CLEANERS, CORN EAR CRUSHERS, &c.



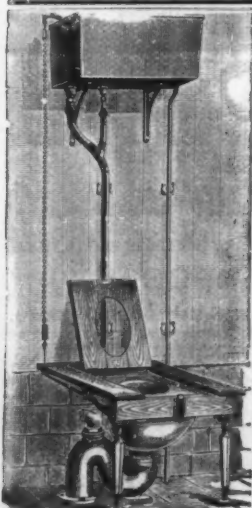
TRADE MARK.



Covert Web Goods, Rope Goods, Snap and Chain Goods

bear the above TRADE MARK, and are sold by all LEADING JOBBERS at
Manufacturers' prices.

Covert Mfg. Co., WEST TROY,
NEW YORK.



Short Neptune Hopper and Trap

WITH FORE AND AFTER FLUSH TANK
AND AUTOMATIC SEAT ATTACHMENT,
MANUFACTURED BY

Haines, Jones & Cadbury Co.

Thousands of these Closets and Tanks have been sold
and have given universal satisfaction.

The Automatic Seat Attachment and the Two
Flushes of the Tank insure a thorough
cleansing of the Closet.

Write for catalogue and price list.

Factory and Warerooms, 1136 RIDGE AVENUE,
PHILADELPHIA, PA.

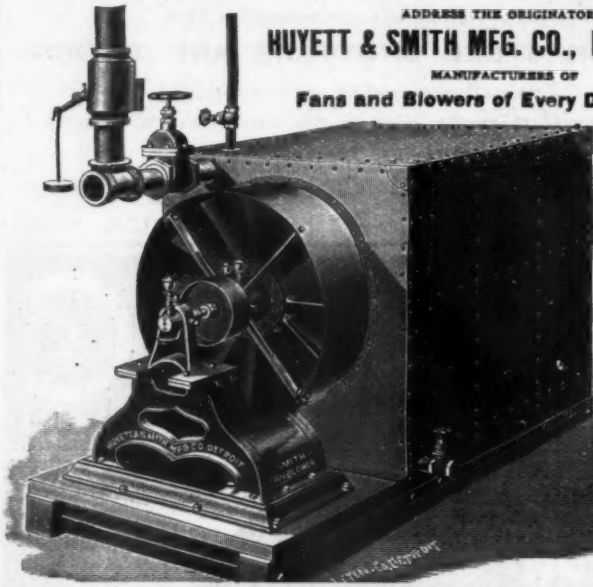
Now is the time to arrange for Heating and Ventilating your Factory,
Store, Church, Theatre or School by the Hot Blast System.

ADDRESS THE ORIGINATORS,

HUYETT & SMITH MFG. CO., Detroit, Mich.

MANUFACTURERS OF

Fans and Blowers of Every Description.



THE MOORE & WAITE CO.
PAPER MACHINERY,
FRIGTION CLUTCHES
& C.
N.E. COR. 15TH & LEHIGH AVE. CUT-OFF
CLUTCH PULLEY. COUPLING.
PHILADELPHIA, PA.

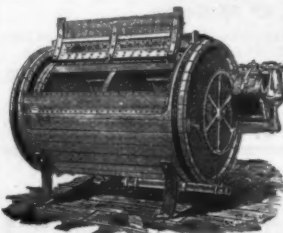


Todd Pulley &
Shafting Works,
EAST ST. LOUIS, ILL.

MANUFACTURERS OF

Machine Molded Pulleys,
Hangers, Boxing, Couplings,
Shafting and Gearing.

Contracts Made for Machinery
Castings of all Descriptions.
Write for Prices and Catalogues.
Refer to us before buying.



Laundry Machinery.

F. M. WATKINS,

98, 98 & 100 E. 8th Street, CINCINNATI, OHIO.

Laundry Machinery.

LARGEST STOCK. LATEST IMPROVEMENTS. FULLEST LINE.
Washing Machines,
Ironing Machines,
Centrifugal Machines,
Mangles, Wringers, &c.
BOILERS AND ENGINES.

—OUTFITS FOR—
Hotels and Public Institutions.

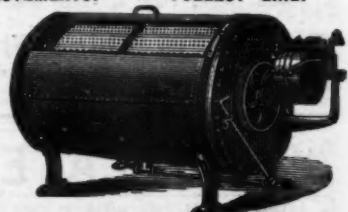
A SPECIALTY.

THE A. M. DOLPH CO.

222 Washington Street,
CHICAGO, ILL.

40 Cortlandt Street,
NEW YORK.

Nos. 166 to 180 W. Pearl Street,
CINCINNATI, O.



Southern Real Estate Directory.

For the convenience of the many readers of the MANUFACTURERS' RECORD it has been deemed advisable to collect under this head a complete and reliable list of the leading Realty Agencies of the Southern States. The value of such a list for the purpose of Ready Reference will immediately become apparent to all who are interested in the growth of this section.

ALABAMA.

BESSEMER—Chas. F. Hard & Co., Real Estate and General Commission, Room 1, Charleston Block.

GEORGIA.

AUGUSTA—Clarence E. Clark, Real Estate, Stocks and Bonds. Loans Negotiated.
AUGUSTA—Mulherin & Armstrong, Real Estate and Insurance. Loans negotiated.
MACON—American Investment & Loan Co. owns valuable Real Estate in and around Macon. Real estate secured for investors.
SAVANNAH—Jackson & Whitley, Counselors at Law. Real Estate and Collection Department. W. G. Woodfin, manager.

KENTUCKY.

CATLETTSBURG—Standard Land Co., Brokers in Mineral Lands. Correspondence solicited.

NORTH CAROLINA.

CHARLOTTE—Brem & Co., 100 City Lots, Farm Lands and Water Powers.
MARION—W. H. Roberts & Co., Real Estate, banking and insurance.
N.WILKESBORO—Am. House & T. Land Co., Ath. Cap. \$5,000,000 Shrs. \$10. Town bldg.
OLD FORT—O. H. Blocker, Real Estate, Timber and Mineral Lands.
OXFORD—Rice & Lassiter, Real Estate, Stocks and Insurance.
STATESVILLE—W. G. Lewis, Real Estate Agent. Correspondence Solicited.
STATESVILLE—P. C. Carlton, Real Estate, Timber and Mineral Lands.
WINSTON-SALEM—J. E. Oatlin, Real Estate and Stocks.
WINSTON-SALEM—P. C. Humphrey, Real Estate, Insurance, Stocks and Bonds.

SOUTH CAROLINA.

COLUMBIA—Geo. W. Parker & Co., Real Estate and Insurance. Loans Negotiated.
COLUMBIA—Sale & Simmons, Real Estate, Stocks and Bonds. Loans negotiated.
GREENVILLE—Browning & Co., Real Estate, No. 60 Court Square.
SPARTANBURG—Spartanburg Investment Association, Real Estate & Loans.

VIRGINIA.

BASIC CITY—A. B. Carter, Real Estate and Insurance Agent. Correspondence solicited.
BERRYVILLE—S. J. O. Moore & Co., Real Estate Agents.
BUENA VISTA—Blackburn, Davis & McGilvray, Real Estate Stocks and Insurance.
BUENA VISTA—A. F. Moore & Co., Real Estate and Stock Brokers.
BUENA VISTA—Guyer, McClure & Co., Real Estate, Stocks and Bonds. Write for pamphlet "Buena Vista Securities."
BUENA VISTA—Buchanan & Anderson, Real Estate Agents and Stock Brokers.
BUENA VISTA—C. H. Jordan & Co., Real Estate, Stocks and Insurance.
CHARLOTTEVILLE—J. C. McKennie & Co., Real Estate and Insurance Brokers.
CHARLOTTEVILLE—L. D. Aylott & Co., Real Estate, Stocks and Bonds. Correspondence solicited.
CHARLOTTEVILLE—Jas. W. Dollin, Real Estate. Send for Dollin's Land Advertiser.
ELKTON—Borum & Fringle, Real Estate, Stock and Insurance Agents.
FARMVILLE—Herndon, Hasell & Co., R. E. and Insurance. Members Va. R. E. Ex.
FORT DEFIANCE—McCue, Parkins & Co., Real Estate. Correspondence solicited.
FRONT ROYAL—Dorsey, Campbell & Co., Real Estate and Stocks, No. 1 Court Green.
LURAY—Wright, Leyburn & Co., Real Estate, Stock & Ins. Correspondence solicited.
NEWPORT NEWS—Robinson & Miller, Real Estate Agents. Correspondence solicited.
NEWPORT NEWS—Braxton, Chandler & Marye, Civil Engineering, Real Estate and Insurance, Washington Ave. & 30th St.
NEWPORT NEWS—C. B. Helms & Bro., Real Estate and Insurance Agents. Representing \$150,000,000.
NEWPORT NEWS—W. E. Barrett & Co., Real Estate & Ins. Correspondence solicited.
NORFOLK—J. M. Marshall & Co., Real Estate Brokers, 113 Main Street.
NORFOLK—A. W. Cornick & Co., Real Estate Agents, 102 Main Street.
ROANOKE—H. Chipman & Co., Real Estate, 109 Salem Avenue. Call and see us.
ROANOKE—Simmons, Carpenter & Tinsley, Real Est. Brokers, 108 Jefferson St.
ROANOKE—Dupuy & Tallentire, Real Estate & Insurance Agents, 11 Campbell St.
ROANOKE—Southwest Virginia Mineral, Timber, Farm, Coal and Iron Ore Lands. J. A. Dalby, Sons & Co. Correspondence sol.
ROANOKE—C. O'Leary & Co., Real Estate Agents, 9 Campbell Street.
ROANOKE—Gray & Roswell, Real Estate Brokers, 120 Jefferson Street.
ROANOKE—Roanoke R. E. Co. (Chartered), R. Estate Brokers. Correspondence solicited.
ROANOKE—Iron Belt Building & Loan Association, Fitzhugh Lee, President.
ROANOKE—Wilbur S. Pole & Co., Buy, Sell and Exchange Real Estate.
SALEM—Allen & Tompkins, Dealers in Mineral and Timber Land.
WINCHESTER—Hancock Bros., Real Estate and Insurance Agents, Court House Ave.
WINCHESTER—Hansbrough & Co., Real Estate and Stock Brokers.
WEST VIRGINIA.
CHARLESTOWN—Washington & Alexander, Real Estate Agents.

CHARLESTOWN—Davenport & Mallorie Members Real Estate Exchange. Negotiations conducted.

JNO. C. ROBERTSON,

18 Times Building,
RICHMOND, VA.

Large tracts of mineral and timber lands for sale throughout the South. Correspondence solicited.

D. G. THOMAS.

T. G. MCCONNELL.

ABINGDON

Real Estate Exchange & Insurance Agency

COAL, Iron, Mineral and Timber Lands a Specialty.

LIFE, ACCIDENT & FIRE INSURANCE.

We represent some of the strongest companies in both Fire and Life Insurance.

THOMAS & MCCONNELL,
ABINGDON, VA.

To Those Looking For
Manufacturing Sites.

The most desirable locations for the manufacture of wagons, stoves, horse and mule shoes, boiler plate, sheet iron, agricultural implements, furniture, or for foundries, machine shops, rolling mills, muck bar mills, nail works, glass works, cotton or woolen mills, pipe foundries, wrought iron pipe works, tanneries, or other manufacturing establishments, are to be found in Virginia, along the line of the Norfolk & Western Railroad, from Norfolk, Va., or Hagerstown, Md., to Bristol, Tenn., and upon its Clinch Valley, Cripple Creek and Ohio extensions. Hardwood in every variety; pig iron from the furnaces at Lynchburg (2), Roanoke (3), Pulaaki (1 in operation and 1 under construction), Ivanhoe (1), Radford (1 now under construction), Salem (1), Graham (1), Max Meadows and Bristol (1 at each point now under construction), Shenandoah (1), Buena Vista (1); bar iron from the rolling mills at Richmond, Shenandoah (now under construction), Lynchburg, Roanoke and Richlands (now under construction); coke and semibituminous coal from the Pocahontas coal and coke field; superior gas coals from mines on the Clinch Valley Extension; glass sand near Tazewell and Buena Vista; Cotton from the markets of the Southern States, and wool from all the Western and Southwestern States and Territories, at advantageous freight rates. Favorable freight rates made upon raw materials to all factories established upon its line, as well as to points in the United States and Territories, upon the manufactured articles.

Those seeking new fields for manufacturing establishments should not fail to investigate the wonderful development of iron, coal and coke industries that has been made with the past five years along the line of the Norfolk & Western Railroad, and the advantages offered by the State of Virginia in the supply of raw materials, by the Norfolk & Western Railroad Company in the matter of freight facilities and rates upon raw materials, and reaching home, far distant and foreign markets, and by the cities and towns along its line in the way of advantageous sites at moderate cost. Many of the cities and towns exempt manufacturing establishments from taxation for a series of years.

For further information as to freight rates and sources of supply of raw materials, maps, pamphlets, etc., apply to

A. POPE, General Freight Agent,
or to CHAS. G. EDDY, Vice-President,
Roanoke, Va.

MANUFACTURERS!

The Jellico Tannery has 28 acres of land, south of and adjoining the Knoxville & Ohio Railroad, which they will deed any part of, or all, to any manufacturing plant, for manufacturing purposes, for one dollar per acre.

B. A. CONNELLY,
JELICO, TENN.

FULTON COLVILLE,

ATTORNEY AND COUNSELLOR AT LAW,
Gate City Bank Building, ATLANTA, GA.

Special attention given Collections, Commercial and Corporation Law. Attorney for Lorry Banking Co., Atlanta, and Manufacturers' Record, Baltimore.

VIRGINIA

"The Bonanza of the Future."

The Coming Iron District of
the United States.

For maps, reference book, pamphlets, etc., descriptive of the wonderful mineral and agricultural resources of the State apply to agents of the Norfolk & Western Railroad, 290 Washington street, Boston; 303 Broadway, New York; 1423 Pennsylvania avenue, Washington, or to General Office, Roanoke, Va.

Manufacturers!

If you are seeking desirable locations, communicate with the undersigned. Special inducements are offered new enterprises in the growing towns along the Baltimore & Ohio Railroad.

Business Men!

Opportunities for the establishment of Profitable Lines of Business are made known on application.

ADDRESS

M. V. RICHARDS,

Land and Immigration Agent Baltimore & Ohio Railroad,

BALTIMORE, MD.



CASH CAPITAL, \$1,000,000.

Employers' and Public
LIABILITY.Boiler Inspection
AND
INSURANCE.PATENTS
VALIDITY and INFRINGEMENT
SEARCHES A SPECIALTY
DODGE & SONS
WASHINGTON, D. C.

WE

Will undertake the transaction of ANY CLASS of legitimate business, and bring ANY DESIRE of any Southern interest to the direct and personal attention of any person or class of persons in the North for a fixed moderate annual fee. Write for prospectus and terms. Address

SOUTHERN INFORMATION BUREAU,

541 Exchange Building, 58 State St.,
BOSTON, MASS.

—WRITE FOR—

PROSPECTUS AND PRESS OPINIONS

THE SECRETS OF CANNING,
A PRACTICAL BOOK FOR CANNERS.

J. MURPHY & CO., Baltimore, Md.

—TO—

Fruit & Vegetable Canners

The cheapest, most efficacious and economical system for putting up high standard goods is the

MUDGE
PATENTED PROCESS

This process consists in the application of steam to the contents of cans or jars in such a manner that all the pressure is downward, and the natural flavors are forced into, instead out of, the fruit, vegetable, or whatever else is to be preserved. The most delicate fruits are preserved without loss of FORM, COLOR or FLAVOR, for any length of time. It can be used to equal advantage for the canning of oysters and shrimps, and for all forms of fish, flesh and fowl.

It is economical as compared with other processes in that it saves

1. Fruit too ripe for transportation.
2. Three handlings, as compared with all other processes.
3. The possibility of loss from fermentation.
4. The necessity of adding artificial coloring.
5. Twenty per cent. in the cost of plant.
6. Ten per cent. over kettle process, because of "swells." Goods prepared by this process command from 15 to 20 per cent. higher prices than any other in the market.

For further particulars address

Mudge Process Fruit Packing Co.

210 E. Lexington St., Baltimore.

Charles F. Mudge, General Manager.

THE BRADSTREET
Mercantile Agency

WAS ESTABLISHED IN 1849.

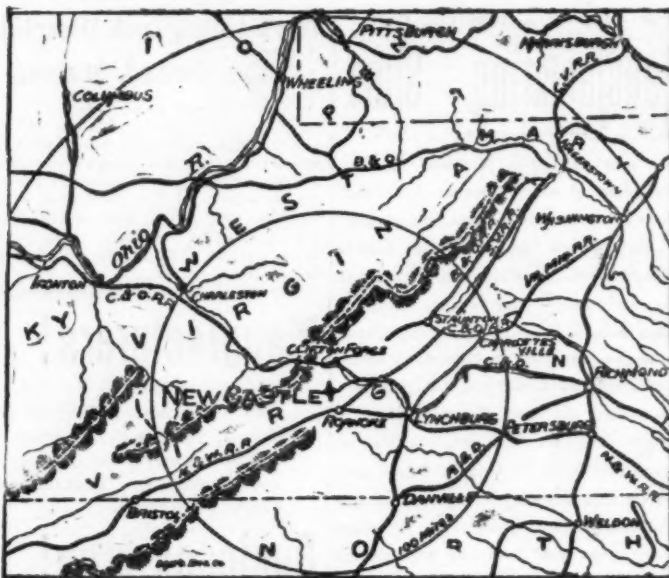
Is the oldest and financially the strongest organization of its kind, working in one interest and under one management, with more capital invested in the business, and expends more money every year for the collection and dissemination of its information than any similar institution in the world. Its reports are considered in the light of a guide by both investors and those contemplating the granting of credit. In addition to a large corps of skilled employees, more than one hundred thousand correspondents contribute the result of their investigation and opinions. Subscriptions are annual, and may commence at any time the subscriber elects. Details as to prices and terms will be furnished upon application.

CHARLES F. CLARK, President.
Baltimore Office - American Building.
H. KERSHAW, Supt.

NEW CASTLE, ^{Craig}County, VA.

• THE IRON BONANZA, •

Convenient to Fuel Supply.



*A City of Immense
Possibilities without
a Rival in all that
goes to Create
Wealth and Power.*

*A Home for Invalids
in which to
Lengthen out their
Lives, and for all
to be and Remain
Healthy & Happy.*

PARADISE OF THE HUNTER AND HEALTH SEEKER.

Future City of the Alleghanies and
Center of Iron Production.

Commodious Hotel for the Entertainment of Summer Guests.

2,000 TOWN LOTS FOR SALE.

FOR INFORMATION ADDRESS

A. E. HUMPHREYS, Prest., New Castle, Va.

—: ALL EYES ARE UPON :—

NEWPORT NEWS.

Unequalled Natural Advantages and Unlimited Capital Combined for
the Upbuilding of a Great Seaport City.

THE NEWPORT NEWS COMPANY,

Having acquired a large body of land—the
best in the entire Newport News section—and
having platted the same, now offers for sale at
moderate prices and on easy terms

Choice Villa Sites Building Lots,

Which will be made readily accessible by the
completion of the electric railway between
Newport News, Hampton and Old Point.

This property is situated on a plateau
looking out upon Hampton Roads, one of the
finest harbors in the world.

It is only a few minutes' ride from the
business center of Newport News, whose won-
derful and substantial growth is attracting
world-wide attention.

BUY LOTS AT FIRST PRICES.

PRICE-LIST FURNISHED ON APPLICATION.

L. P. ROUTT, - - General Agent, - - Richmond, Va.

NO MACEDONIAN CRY

Goes up from WINSTON-
SALEM, North Carolina.

She says, instead,

"Come Over and Help Yourselves!"

Surrounding her, and to be had for \$5 to \$25 an acre, are a million acres of now untilled land which would yield in tobacco every year a net profit of \$50 to \$100 an acre. Where can you beat that? Ten thousand live planters could make ten thousand fat fortunes here in fifteen years.

Come South, Discouraged Farmer of the North,

whose sterile soil and bleak clime rob your homes of sunshine. Come to the land of blue skies and balmy zephyrs, where nature is bountiful and the earth generous.

New England has more money in savings banks than all the country besides, and yet in North Carolina thousands of acres of better land than all New England's are given over to weeds and woods. (And, by the way, there is enough power in North Carolina streams to turn all the mills in America).

Come South, Ambitious Farmer of the West,

Why remain where you have more failures than you have crops? Come where the soils will raise everything that can be raised anywhere, where total failures are unknown, where industry, frugality and intelligent labor do not go unrequited, where you don't have to burn corn for fuel, run chances of losing your lives in winter's blizzards nor blister and parch all summer unless the rainmaker happens to come along.

Now About the Town.

WINSTON-SALEM,

Has ONE FACTORY for Nearly Every ONE HUNDRED of Her
16,000 Population.

Pay Roll _____

of the factories alone, one million dollars a year, all cash.

This is the Basis _____

on which Winston-Salem is built, and yet the resources of the
surrounding country are only meagrely developed.

North Carolina _____

never has had a boom, and yet she is an epitome of every-
thing excellent in the way of soil, climate, minerals, timber
and water-power which the United States contains.

"The Next Big Development _____

in the South will be seen in North Carolina."—*Consensus of
Public Opinion.*

That Winston-Salem _____

is easily the most important manufacturing city in the State
no one pretends to question.

If You Want _____

to make a real estate investment or a business undertaking in
a live town you can do no better than come to Winston-Salem
right now.

As A LOCATION for Manufactures

Of Iron and Wood and for General Industrial and
Business Enterprises,

FRONT ROYAL, VA.

INVITES INVESTIGATION.

Its location, at the junction of the Norfolk & Western Railroad (Shenandoah Valley line) and the Richmond & Danville's branch, give it excellent transportation facilities. It is only a few hours' ride distant from Washington. The Norfolk & Western's direct line to Washington will be built from Front Royal.

There is no Finer Agricultural Country in the World than the Famed Shenandoah Valley, in which Front Royal is Located.

A WIDE RIVER WITH SWIFT CURRENT FURNISHES WATER POWER
AND MAKES DRAINAGE PERFECT.

Front Royal is a Prosperous Town, with an Extensive Mercantile Business
and Many Manufacturing Enterprises in Operation and
Under Construction.

INVESTIGATION OF ITS ADVANTAGES IS INVITED BY THE

Front Royal---Riverton Improvement Company,
FRONT ROYAL, VIRGINIA.

The Winston Land & Improvement Company.

Charter granted by Act of Legislature, Session of 1887. Ratified March 4, 1887, Chapter 82.

Authorized Capital, - - - \$1,000,000.

Present Capital Stock \$125,000. All Subscribed and Paid Up.

OFFICERS:

G. W. HINSHAW, President, of Hinshaw & Medearis, Wholesale Merchants; Vice-President People's National Bank, Winston, N. C.
DR. W. L. BROWN, Vice-President, of Brown Brothers, Tobacco Manufacturers, Winston, N. C.
W. F. TROGDON, Secretary and Treasurer, North Wilkesboro, N. C.

BOARD OF DIRECTORS:

GEO. W. HINSHAW, Winston, N. C.
MAJ. CHANNING M. BOLTON, Chief Engineer Richmond & Danville Railroad, Washington, D. C.
P. H. HANES, of P. H. Hanes & Co., Tobacco Manufacturers, Winston, N. C.
COL. J. M. WINSTEAD, Cashier Piedmont Bank, Greensboro, N. C., and President H. P. Scales Tobacco Co., Atlanta, Ga.
A. A. FINLEY, ESQ., Mayor of North Wilkesboro, N. C.

ATTORNEYS:

T. B. FINLEY, ESQ., North Wilkesboro, N. C.
HON. C. B. WATSON, Winston, N. C.
HON. J. C. BUXTON, President First National Bank, Winston, N. C.
HON. W. W. BARBER, Wilkesboro, N. C.

THE COMPANY OWNS THE NEW TOWNSITE OF

NORTH WILKESBORO,

NORTH CAROLINA,

Consisting of 1,036 acres, and also owns 4,100 acres of Mineral and Timber Lands in Wilkes County, which property is now being developed. Townsite purchased November 11, 1890. Property put on market at private sale and first lot sold May 12, 1891. North Wilkesboro chartered by the legislature March 4, 1891.

188 Lots sold at Public Auction, December 2, 1891, one fourth of which will be built on at once.

Over sixty buildings already on the townsite.

Already established, one large, handsome, well-furnished and well-kept Hotel; one Saw Mill, Planing Mill, Door and Sash Factory combined; two Saw and Planing Mills; two Brick-yards; one Tan-yard; one Newspaper, the "North Wilkesboro News." Charter was obtained from the last General Assembly for the Bank of North Wilkesboro; the capital stock, \$50,000, has been subscribed, and bank will open for business before March 1st, 1892; fourteen Stores and one large Livery Stable.

Ten miles of streets graded.

Manufacturing sites will be donated and stock subscribed to such legitimate enterprises as may be advantageously located here.

North Wilkesboro, 75 miles west of Winston-Salem, on the Northwestern North Carolina Railroad, is the most important trading point between Winston-Salem and Bristol,

Tenn., and is in the center of the great undeveloped mineral and timber district of Northwestern North Carolina, being by United States postal map, on an air line, 75 miles southeast of Bristol, Tenn., 45 miles east of Cranberry, N. C., 40 miles north of Statesville, 45 miles northeast of Hickory, 90 miles northeast of Asheville, 45 miles southwest of Mt. Airy, N. C., and 80 miles north of Norfolk & Western Railroad, in the Valley of the Yadkin, between the Brushy mountains on the South and Blue Ridge on the north. The best located, watered and drained town in North Carolina.

Her climate is of unsurpassed salubrity and healthfulness. Fresh water and mineral springs abound, and the 328 miles of water courses in Wilkes County furnish a water power of almost incalculable magnitude.

Home seekers, health seekers, and wood and iron manufacturers, will do well to investigate North Wilkesboro's advantages.

PLATS, PRICES AND ANY DESIRED INFORMATION PROMPTLY FURNISHED ON APPLICATION TO

W. F. TROGDON, Secretary and Treasurer,

NORTH WILKESBORO, N. C.

RUTHERFORDTON

NORTH CAROLINA,

IS NOT A "CORNFIELD TOWN," A "PAPER TOWN" NOR A
TOWN OF THE IMAGINATION.

It Is the County Seat of Rutherford County,

WHICH LIES AT THE BASE OF THE BLUE RIDGE MOUNTAINS

Rutherford County

Has a population of 20,000; has undeveloped water-powers sufficient to run all the spindles of New England; has undeveloped mines of Gold and Iron; has 130,000 acres of virgin forests of Oak, Hickory, Yellow Poplar and Highland Pine; has over 200,000 acres of tillable Farming Lands, uncultivated, yet capable of raising anything (except the tropical fruits) that can be grown "on the green earth."

When all these resources

Have been developed—and they are right now attracting the attention of capitalists from all sections of the country—its county seat is DESTINED TO BECOME A CITY! Its growth has begun. Population 750 in 1890; 1,500 in 1891. "MORE NEW HOUSES THAN OLD ONES IN RUTHERFORDTON!"

J. MATHEWS, Secretary.

Real Estate Men

ATTENTION.

WE OFFER YOU

Splendid Opportunities for Investment.

RUTHERFORDTON

Acre Property

SUITABLE FOR

SUB-DIVISION,

ALSO

LOT PROPERTY IN BLOCKS

AT LOW PRICES.

The Property of the Gleghorn Co.

Surrounds the present Business and Residence portion of RUTHERFORDTON on all sides and includes business property on Main Street.

REAL ESTATE MEN SEEKING A

PROFITABLE LOCATION IN A NEW FIELD

SHOULD CORRESPOND WITH

J. MATHEWS, Secretary,

RUTHERFORDTON, N. C.

NORFOLK, VA.

THE GREAT SOUTHERN SEAPORT.

Attention of manufacturers and others seeking investment or establishment in the South is called to the following facts:

Norfolk has the most magnificent natural harbor of the Atlantic Coast, having no bar to block its entrance, being within 25 miles of the ocean, sheltered from all vicissitudes of weather, always free from ice, with sufficient depth of water for the deepest draft vessels.

Hampton Roads, at the confluence of the James and Elizabeth rivers with the Chesapeake bay, is easy of access, navigable for vessels of any size or draft.

It has been designated by Congress as the rendezvous for the navies of the world in 1892-'93.

A 26-foot channel, well marked with buoys and light houses, leads to the wharves of Norfolk, and above the city to the Navy-yard.

Seven broad-gauge and two narrow-gauge railroads, controlling an aggregate of over 17,000 miles, put Norfolk in connection with all the points reached by railroads in this country, and two

The water supply is derived from large lakes of spring water seven miles distant, good not only for household use, but admirably adapted for manufacturing purposes, being absolutely free from all those substances that corrode boilers.

The climate, tempered by the proximity of the Gulf Stream, is mild. There is hardly ever ice or snow to interfere with out-door work or exercise.

The city is lighted with electric lights, and has as fine a fire and police department as any in the country.

All denominations are well represented in churches. There are two good hospitals, one in charge of the Sisters of Charity, and the other under the Protestant organization of the city.

Educational advantages are excellent, there being a thorough system of public schools, together with numerous private seminaries for both sexes.

There are two good theatres, at which the best companies stop on their pilgrimages from the North to the South.

This is one of the largest pine lumber markets in the South; 100,000,000 feet were shipped in 1890.

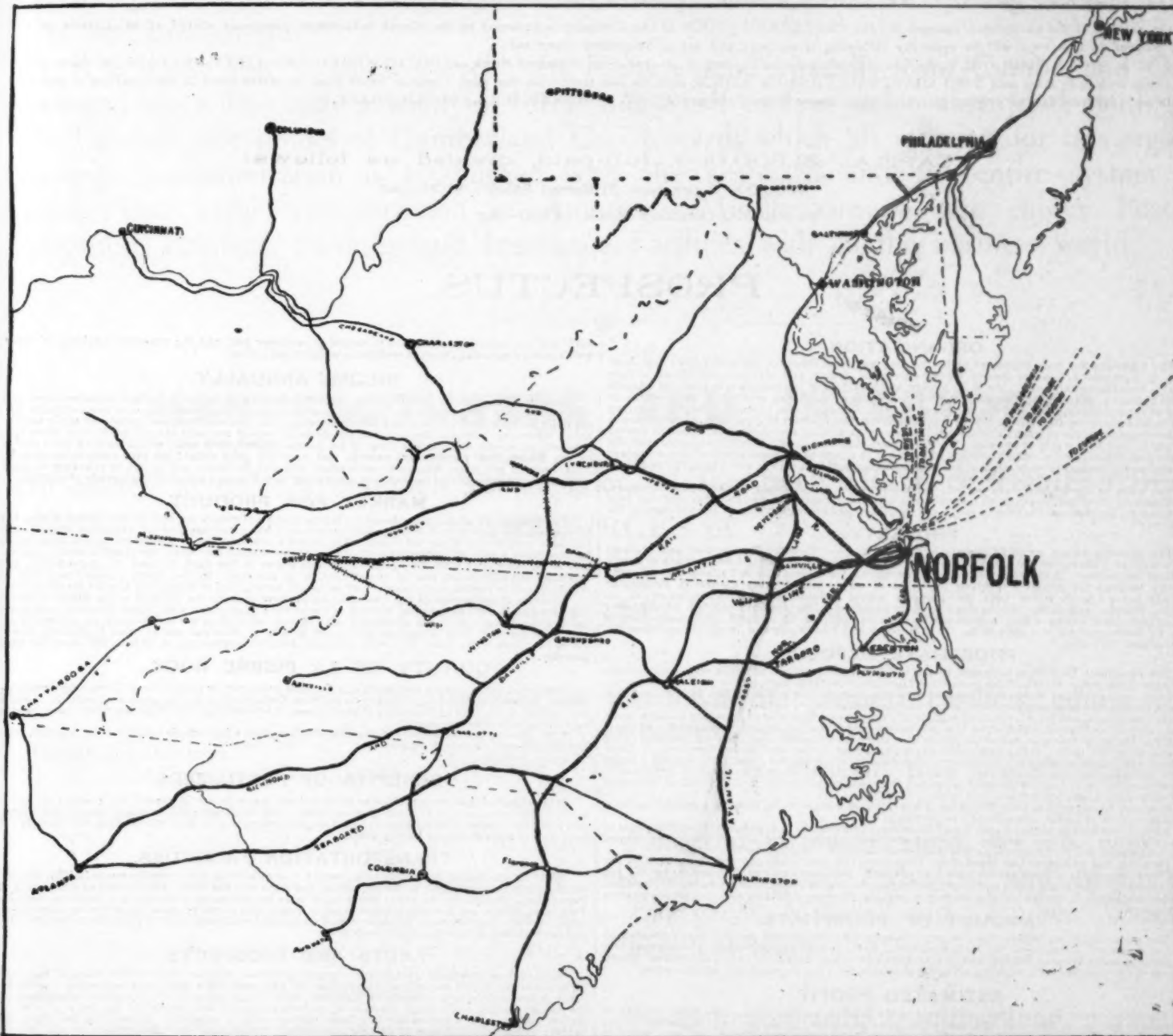
The best bituminous coal and coke are supplied by the C. & O. R. R. and N. & W. R. R.

Pig iron is delivered here by these two railroads.

Roller iron and all of its products can be promptly and cheaply freighted by water to all of the leading seaports.

600,000 bales of cotton are annually marketed here, which makes this the most desirable point for the manufacture of cotton goods in the United States, superior to inland towns throughout the cotton belt, because a factory located in these is dependent on the local product marketed in three or four months, after which it has to draw from distant points or carry a sufficient stock for the year, or if the quality or grade in the locality is unsuitable, it is subjected to the expense of freight from distant points; but Norfolk being a large cotton market, not only furnishes an assortment of grades and quality, but enables the manufacturer to purchase his stock all the year.

It is superior to other seaports from its accessibility to New York, Boston and other markets, or such supplies as the manufacturer frequently needs on short notice, while its railroad lines to the interior distribute goods to all points.



canals connect with the Sounds through the Carolinas.

First-class steamship lines ply to Boston, Providence, New York, Philadelphia, Baltimore, Washington, Richmond and other points on the Coast and Sounds.

Norfolk is within 20 hours of Boston by rail and 40 by water.

12 hours of New York by rail and 21 by water.

10 hours of Philadelphia by rail and 18 by water.

8 hours of Baltimore by rail and 12 by water.

7 hours of Washington by rail and 12 by water.

2½ hours of Richmond by rail.

23 hours of Cincinnati, and 34 hours of Chicago and St. Louis by rail.

A regular line of passenger and freight steamships ply to the Brazilian ports, and steamships, chartered mostly for the carriage of freight, ply to Liverpool and other European ports.

In 1883 the aggregate trade of Norfolk was placed at \$38,300,436, while five years later, in 1888, it had risen to \$65,011,466; in 1889 it increased to \$75,000,000, and in 1890 to \$100,000,000. The vessel tonnage of Norfolk in 1870 was 13,502 tons, cargoes valued at \$286,594; in 1880 it increased to 103,608 tons, valued at \$11,116,595; in 1887, 257,884 tons, valued at \$14,714,404; for the year 1890 the tonnage reached 359,846, valued at \$15,197,095.

It will be hard to find a parallel case in this country in two decades showing an increase of tonnage from 13,502 tons in 1870, valued at \$286,594, to 359,846 tons in 1890, valued at \$15,197,095.

The population of Norfolk, including Portsmouth, Berkley and other suburbs, is 70,000; the increase within the city limits has been 61 per cent. in the last ten years.

This increase, with the growth of business and enhancement of value in property of all kinds, is turning the attention of capitalists and investors to this point.

The City of Norfolk has a complete system of sewerage and is well paved.

The healthfulness of the climate, as exhibited by the death rate, is not surpassed by any city in the country, the percentage being in 1890 16.90 to the 1,000.

In addition to the manufacture of cotton and iron, there is at Norfolk opportunity for profitable manufacture of furniture and all articles made of wood, such as ash, oak, pine, poplar, cedar, cypress, juniper, gum, and for the manufacture of safes, stoves, hardware, wash, door and blinds, etc.

The cost of labor ranges from \$1 to \$1.50 per day for unskilled men, and \$2 to \$3 for skilled men; females 50 cents to 75 cents a day unskilled, and 75 cents to \$2 a day for skilled; boys 25 cents to \$1 per day; girls 25 cents to \$1.25 per day.

The above quotations are for white labor.

Unskilled negro labor can be employed at 80 cents to \$1 for men and 50 cents for women.

Norfolk has been exempt from those labor troubles and strikes which have characterized Northern manufacturing cities.

The surrounding country being the great vegetable-growing section of the seaboard, and the rivers and bays being filled with the finest fish and oysters, make living cheap and healthy.

Although in banking facilities Norfolk is fairly well supplied, there being nine banks with an aggregate capital of about \$1,000,000 and aggregate deposits of about \$5,000,000, there is, however, a good opening for another bank.

Norfolk offers a field for the establishment of jobbing houses in dry goods, boots, shoes, hats, caps, notions, drugs, tinware and all other kinds, excepting wholesale groceries, in which she is well supplied.

The country lying to the southward west of Norfolk furnishes the markets to which goods from here are distributed in exchange for cotton, corn, wheat, peanuts and other crops.

The NORFOLK INDUSTRIAL DEVELOPMENT CO. has been organized for the purpose of furnishing information and assisting the establishment of manufacturing enterprises.

Free sites can be obtained on the railroad lines around the city, and reasonable subscriptions will be made to the stock of manufacturing enterprises, provided they are meritorious, but no proposition will be entertained from any but bona fide concerns, using good machinery and stocked on a business-like basis.

Capital invested in machinery is exempted from taxation for ten years, and will probably always continue so.

For further particulars, address

WALTER P. IRVINE,

SECRETARY NORFOLK INDUSTRIAL DEVELOPMENT CO.

OF INTEREST TO INVESTORS.

An Investment in **FLORIDA PHOSPHATE MINING**, Offering a CONSERVATIVE INVESTMENT Combined with an Unparalleled Opportunity for PROFITS.

THE LA PIERRE PHOSPHATE COMPANY,

of BOSTON, MASS., and TALLAHASSEE, FLA.

On account of the unexpected demand for the PREFERRED STOCK of this Company, occasioned by the liberal inducement previously offered, all sales made on and after November 28th, 1891, will be upon the following terms only, and not as heretofore advertised:

FOR A SHORT TIME ONLY, the Company offers for sale a limited amount of its Preferred Stock at ONE HUNDRED AND FIFTY DOLLARS per share, giving as a bonus with each share sold TWO SHARES OF COMMON STOCK, with the sole restriction that such Common Stock shall be surrendered to the Company at any time within one year from date of original purchase, upon tender by the Company of ONE HUNDRED DOLLARS PER SHARE.

CAPITAL \$1,500,000, full-paid, divided as follows:

\$500,000 8 per cent. Preferred Stock; \$100—par.

\$1,000,000 Common Stock; \$100—par.

PROSPECTUS.

ORGANIZATION.

The Company has been organized under the personal supervision of the well-known law firm, Balch & Rackemann, Counselors and Conveyancers, of Boston, and Mr. John W. Weed, of New York, a well-known Attorney. Mr. E. C. Mudge, the President of the company, is a man of unquestioned executive ability and experience, having successfully established systems of water works in many of the prominent cities and towns of New England. He has also recently refused a flattering offer to take charge of the construction of a proposed railroad in order to give his entire attention to the development of the company's property. He is now located at the mines where he will devote his time to the interest of the company. Mr. F. E. Owen, the Treasurer, formerly connected with the Boston Post Publishing Co., which position he resigned to accept the Treasurership of this company, is well-known among his large circle of business acquaintances as a man of strict integrity and large experience in financial and business affairs.

The titles to the property are perfect, and the property is absolutely owned by the company, being entirely clear and free from all encumbrance with the exception of \$320,000 7 per cent. ten year Gold Bonds, which have all been placed; the entire proceeds being devoted to the purchase of the property.

PROPERTY.

The property owned by this Company is situated in Leon County, Florida, two and one-half miles west of Tallahassee on the Florida Central & Peninsular Railway, three-quarters of a mile north of the railway. A railway in course of construction, the Gainesville & Tallahassee, will pass directly through the property if given the right of way. The Florida Central & Peninsular Railway has a branch which puts the property within seventeen miles of tidewater at St. Marks, Florida, and other railways are in contemplation. The property consists of sixteen hundred and sixty-nine acres of upland in one body, about one and three-quarters miles long by three-quarters of a mile wide. It is nearly all cleared, and in good condition for agricultural purposes.

PHOSPHATE DEPOSIT.

The Phosphate Deposit, as indicated by pits and borings, is one-half of a mile wide, and extends throughout the entire length of the property. There are now three open pits or shafts on the property, two in the middle, about one thousand feet apart, across the width of the deposit, and one three-quarters of a mile northwest of these, near the northwest end of the property. These shafts are six feet square, and go to a depth of sixty feet. There have been also at least fifty borings made in all parts of the deposit, which show in a general way the following deposit of phosphate of lime:

The First Stratum, called purple rock is seven and one-half feet from the surface. This stratum is 17 feet thick. It is a low grade, averaging about 55 per cent. Bone Phosphate of Lime without washing or separation. It requires separation to eliminate the sand, thus making a high-grade phosphate of about 72 per cent. This is not regarded at present as being of great value. Below this stratum is found white sand seven feet thick, and then fire-clay, available for all purposes that such material is used for, four feet thick.

Second Stratum is a soft Phosphate 4 feet thick, of a high-grade, running about 73 per cent. Bone Phosphate of Lime. Immediately below this is the

Third Stratum of granulated Bone Phosphate, analyzing about 55 per cent. Bone Phosphate of Lime crude, and 70 per cent. washed. This is a wonderful deposit, being already ground by nature, and can be used as a fertilizer just as it is taken from the earth. Next below this is the

Fourth Stratum of fine Hard Rock Phosphate, 12½ feet thick, and analyzing over 75 per cent. Bone Phosphate of Lime crude, with only 35-40 of 1 per cent. oxide of iron, and 25-30 of 1 per cent. alumina. This is the finest and principal stratum, having, as further compensation for its depth, greater uniformity in quality and the absence of pockets, showing a reliable and continuous stratum throughout.

AMOUNT OF PHOSPHATE.

The amount of phosphate on this property is practically unlimited, having been estimated by Prof. Lawrence C. Johnson, of the U. S. Geological Survey, who has personally investigated this property, as being between 80,000,000 and 100,000,000 tons, including all grades. There is no water to interfere with working, all being above the fire-clay, or practically surface water.

ESTIMATED PROFIT.

The present price for high-grade phosphate on the English market is 11d., or 22 cents per unit or per centum per ton, or for 70 per cent. grade, the price would be \$15.40 per ton. Allowing 50 per cent. of this value for cost of mining, handling, transportation, insurance, brokerage, etc., which is liberal in the extreme, leaves a net profit of about \$7.70 per ton.

This does not include the granulated or ground bone phosphate stratum of the same surface dimensions, but eight feet thick; nor the upper stratum, which is 17 feet thick. The expense of mining the phosphate is certainly less than mining coal, as there is no blasting, or water to contend

with, and has never been estimated to exceed 50 cents per ton, and the practical working of other well-known companies shows this estimate to be conservative.

INCOME ANNUALLY.

With our three separate sets of hoisting machinery, each with its own boiler and appurtenances, and capable of lifting 3,000 pounds per trip, one hundred tons of phosphate is a very low estimated output daily for each shaft; in fact, two hundred tons per day per shaft may be considered fairly reasonable. Assuming, however, that 300 tons per diem are mined and sold at a net profit of \$7.50 per ton, produces an income of \$2,250 per diem, or for 300 days \$600,000 net, which leaves 8 per cent. on the \$500,000 preferred stock, and over 88 per cent. on the common stock. This is not, in any sense, excessive estimation, and can be borne out in fact by reference to other companies not as favorably located, nor possessing such a large amount of high-grade phosphate.

MARKET FOR PRODUCT.

The demand for high-grade phosphate is practically unlimited, not only in the United States, but throughout the continent of Europe, phosphoric acid being the basis of all vegetable growth, and the main constituent of all fertilizers. The world's consumption of phosphate, which must be an indispensable article of commerce until that probably distant day when the chemist shall manufacture in the laboratory what the agriculturist now grows in the field, is rated at 1,500,000 tons, and increases annually at the rate of 25 per cent. or 30 per cent. In five years 4,500,000 tons will be required, and in twelve years 12,000,000 or more will be required to supply the market for the season.

Since the abandonment of the Canadian fields there remains the product of the States of South Carolina and Florida as the chief sources of the world's supply, and with South Carolina rock averaging about 57 per cent. bone phosphate, and costing some \$3.00 per ton to mine, as against 70 per cent. to 80 per cent. bone phosphate, and a cost of only 50 cents per ton to mine in Florida, it will not be long before the latter State will maintain absolute supremacy, if, in fact, she does not hold it to day.

QUALITY OF LA PIERRE ROCK.

In relation to the quality and grade of phosphate produced by the La Pierre Phosphate Company, Messrs. Stillwell & Gladding, chemists to the New York Produce Exchange, and, doubtless, among the highest authorities as phosphate chemists, state the following, over their signature, and after a careful analysis of our product:

"We have no hesitation in pronouncing this phosphate a high-grade article of the highest commercial and manufacturing excellence. Very truly,
STILLWELL & GLADDING."

BENEFITS OF FERTILIZERS.

It is estimated that the introduction of phosphatic manures has increased the product of cotton in the South from 4,000,000 to about 8,000,000 bales. The increased yield of an acre sowed with wheat, and properly dressed with fertilizers, has been phenomenal, more than doubling the bushels per acre, and in some instances many fold.

TRANSPORTATION FACILITIES.

The Florida Central & Peninsular Railway Co. are affording this company every facility they can for the cheap transportation of the phosphate, and have erected large store-houses and elevators at Fernandina, Florida, for the ready handling of same for shipment to foreign and domestic markets. Two other roads are now being constructed to reach this property, thus guaranteeing competitive rates. Direct shipments can be made from Tallahassee to all parts of the United States and Europe, and the facilities are all that could be desired.

FACTS AND PROSPECTS.

With such an enormous tract as this company possesses, situated within three miles of the capital of the State; within one mile of a trunk line railway, and with a spur track connection; with two other railways striving to compete for business; with a large quantity of high-grade phosphate for the foreign market, and a large amount of medium-grade for the American market; with every facility for mining at a remarkably low price; with no expensive pumping to contend with; with an enormous profit for the product, the demand for phosphates, in the present methods of high agriculture, increasing more rapidly than the supply; and with honest management, there would seem to be nothing wanted to ensure immediate and complete success, rendering the stock of the company not only very valuable, but commanding a premium for generations to come.

LA PIERRE PHOSPHATE COMPANY,

Incorporated under laws of West Virginia.

B. C. MUDGE, President.

F. E. OWEN, Secretary and Treasurer.

BOSTON OFFICE, 738 EXCHANGE BUILDING.

THE OLD COLONY TRUST COMPANY, of Boston, whose statement we append below, is Trustee for Bondholders and Transfer Agent for the Stockholders.

STATEMENT—AUGUST 1, 1891.

Assets.		Liabilities.	
Loans.....	\$3,529,399 47	Capital Stock.....	\$1,000,000 00
City and other Bonds at or under par.....	389,295 19	Surplus.....	500,000 00
Deposit Vaults.....	62,714 35	Undivided Profits and Interest.....	112,588 70
Expenses Paid.....	11,918 93	State Tax.....	11,000 00
Cash on hand.....	210,419 97	Deposits.....	3,542,576 52
Cash in Bank.....	962,417 31		
	<u>\$5,166,165 22</u>		<u>\$5,166,165 22</u>

EDWARD F. POWERS,
President.

JOHN M. BROOKS,
Manager.

MIDDLESBOROUGH

Is located in Bell County, Kentucky, near the junction of the three States of Virginia, Kentucky and Tennessee with the Cumberland Mountain at a point where that mountain is most heavily freighted with its precious stores of Coking Coals, Iron Ores and Limestone.

It is 1,080 feet above sea-level. Its limits extend virtually from Cumberland Gap westward six miles, with a width of three and a-half to four miles north and south.

Through the tunnel at Cumberland Gap, towards which all railways for this region converge, communication is established with the seaboard and the entire system of railway and water transportation in America. Middlesborough also enjoys Postal, Telegraph, Express, Banking and Insurance Facilities with all the business world.

MANUFACTURERS AND INVESTORS

Are invited to make a thorough investigation of the MINERAL AND TIMBER RESOURCES of

MIDDLESBOROUGH, KY.

For in the origin and development of the town the primary cardinal points why a town should be built exist here to a pre-eminent degree

Middlesborough occupies a POSITION second to none in the United States as regard coal and iron.

The Natural Resources are in such wonderful profusion and are so easy of development that it is only a question of time when a great Industrial and Manufacturing city will surely be built to consume the great Mineral and Timber Wealth which nature has deposited here with such a prodigal hand.

There are already built:

Two Large Iron Furnaces,
An Immense Steel Plant,
A Mammoth Tannery (in operation),
A Brewery, Cold-Storage and Ice Manufacturing Plant,

A Belt Railroad, 23 miles long,
Water Works, Electric-Light Plant,
Foundries, Saw Mills, Planing Mills,
Furniture and Bent Wood Factories,
Telephone and Electric Street Car Systems

And other smaller plants of various descriptions.

THE MIDDLESBOROUGH TOWN LANDS COMPANY,

MIDDLESBOROUGH, KY.

Address all communications to the Manager.

WILLIAM C. CODD,

BALTIMORE, MD.

Leather Belting.
Rubber Belting.
Cotton Belting.
Link Belting.
Elevator Buckets.
Elevator Bolts.
Lace Leather.

Machine Bolts.
Lag Screws.
Bolt Ends.
Square and Hexagon Nuts.
Washers.
Cap Screws.
Set Screws.

Hand Drills.
Emery Cloth.
Twist Drills.
Pipe Tools.
Spring Keys.
Spring Cotters.
Lubricating Grease and Cups.

WRITE FOR PRICES

ON

16 in. Gould & Eberhardt Shaper. New.
18 in. x 6 ft. bed Engine Lathe. New.
14 in. x 6 ft. bed Screw Cutting Lathe. New.
14 in. x 7 ft. bed Screw Cutting Lathe. New.
10 in. x 5 ft. bed Engine Lathe, ft. motion. New.
8 in. x 4 ft. bed Screw Cut'g Lathe.
8 in. Speed Lathe, foot motion. New.
30 in. Drill Press.
24 in. Drill Press.
75 horse-power water tube boiler, second hand.
25 " " vertical " " "
12 " " locomotive " " "
8 " " vertical " " new.
9 " " " " "
7 " " " " "
6 " " " " "
5 " " " " "
4 " " " " "
6 " " " " "
8 " " " " "
10 " " " " "
20 " " horizontal " " "
13 1/2 " " "Lawson" gas " second hand.
Steam Pump, capacity 600 gallons per hour, ordinary speed, second hand.
Eclipse Steam Pump, 4x2 1/2 x 4 in., new.
" " " 6x3x6 in., "
" " " 8x4x10 in., "
" " " 12 1/2 x 7 x 18 in., "
" " " 18x12x24 in., "

Wrought Iron Pipe.
Cast Iron Pipe.
Iron Pipe Fittings.
Malleable Iron Fittings.
"Keystone" Unions.
Brass Globe Valves.
Iron Body Globe Valves.
Brass and Iron Steam Stops.
Jenkins' Valves.
"Fairbank" Valve.
Gate Valves.
Files and Rasps.
Emery Wheels.
White and Colored Waste.
Steam Gauges.
Process Kettle Gauges.
"Self-Clinch" Belt Hooks.
Babbitt Metal.
Sight-Feed Lubricators.
"Rainbow" Packing.
Sheet Rubber Packing.
Piston Packing.

AGENT FOR

CLEVELAND & HARDWICK ENGINES.

HALL STEAM PUMP COMPANY.

VALLEY IRON WORKS AUTOMATIC ENGINES.

CURTIS & CURTIS DIE STOCK.

"HOYT" METAL COMPANY.

BEMIS & CALL COMBINATION WRENCHES.

THE FRED. J. MYERS MFG. CO.

MANUFACTURERS OF

WROUGHT-IRON FENCES, ROOF CRESTING, JAILS

AND ALL KINDS OF

BUILDING IRON WORK.

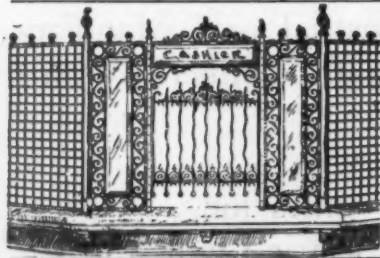
ALSO

Wire Bank and Office Railing, Wire Window Guards

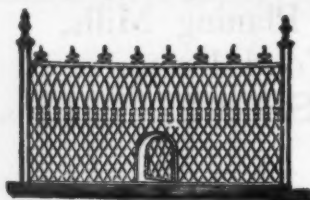
AND EVERY DESCRIPTION OF WIRE WORK.

Send for illustrated catalogue.

OFFICE AND WORKS, 419, 421 and 423 MADISON STREET, COVINGTON, KY.



Artistic Railings,
ELEVATOR ENCLOSURES,
Brass Work, Wickets, Grills, Wire
Railings and Partitions.
Wire and Iron Work of Every Description.
J. E. BOLLES & CO.
DETROIT, MICH.
Mention MANUFACTURERS' RECORD.



COLUMBUS WIRE WORKS,
MANUFACTURERS OF
OFFICE RAILING, WINDOW GUARDS,
Wire Railing for Cemeteries, Lawns and
Gardens. Wire Flower Stands and
every description of Wire Work.
J. L. SOUTHCUMB, Proprietor, Columbus, Ohio.



CHAMPION IRON CO.
KENTON, OHIO.

SPECIALTIES.—Iron Stairs and Jail Work, Builders' and Ornamental
Iron Work and the only manufacturers of Malleable Iron
Cresting guaranteed against breakage.

Largest Iron Fence and Railing Works in United States.

C. G. CUSHMAN, Pres. & Mgr.

JOHN BIRD, 2nd, V.-Pres. & Supt.

A. J. COFFIN, Sec. & Treas.

THE CUSHMAN IRON CO.

Architectural and Ornamental Iron Works,

BRIDGE RAILINGS, FENCES, FIRE ESCAPES, BEAMS, CHANNELS, GIRDERS, &c.

Selling Agents for Engines, Boilers, Elevators, Wire Rope Tramways, Wire Rope,
Iron and Steel Siding and Roofing, Etc.

OFFICE—Commercial Bank Building.

WORKS—West End.

ROANOKE, VA.

HONHORST, LITTLEFORD & CO.

137, 139, 141 E. Pearl Street, Cincinnati, Ohio.

SHEET-IRON WORK.

We invite correspondence from parties requiring work in Sheet Iron from the lighter gauges up to
three-sixteenths (3-16) in thickness, including:

Tanks, Smoke-Stacks, Breechings, Blast Pipe and Special Work.

Also from those using Screens for Mills, Distilleries, Coal Mines, Brick and Tile Manufacturing
or any purpose requiring the use of PERFORATED METALS.

Send for price list and illustrated circular of

STATIONARY AND PORTABLE IRON POWDER MAGAZINES.

THE BILLINGS		& SPENCER CO.
HARTFORD		CONN.
MANUFACTURERS OF		SCREW PLATES AND
DIES MADE IN 5		SIZES CUTTING
THREADS FROM	1/16 OF AN INCH	
TO 2 INCHES V	THREAD. ALSO	
U.S. STANDARD AND	WHITWORTH THREAD	
DROP FORGED	OF BAR STEEL	

THE ENTERPRISE SAFETY ELEVATOR CO.

BUILDERS OF

PASSENGER AND FREIGHT

ELEVATORS.

CHATTANOOGA, TENN.

Office, 117 Market Street.

Works, 118 Broad Street.

The only elevator works in the South.

Send for catalogue.

THOMAS G SMITH, JR.,
CONSULTING AND CONTRACTING ENGINEER,

"STEAM PLANTS"

No. 11 HAMMOND BUILDING,

CINCINNATI, OHIO.



TRUCKS.

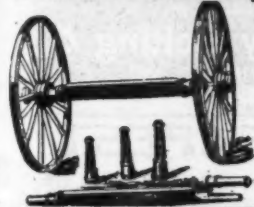
Mounted on both Iron and Rubber Wheels. Trucks made to order.
HEAVY MILL CASTORS, Iron or Rubber Wheels.

Write for prices.

Catalogues free.

CEO. P. CLARK, Box A, Windsor Locks, Conn.

Union Foundry & Machine Works, MANSFIELD, OHIO.



SKEIN FITTING MACHINES

For Fitting Cast Iron or Steel Skelns.

The hard and most particular work of WAGON BUILDING done by MACHINERY, and dry hickory axles furnished with Skeins fitted on, all complete, with the set and gather for wheels with one-half inch dish. The accompanying engraving represents our wagon axles as fitted up by us ready for the market. When ordering give exact width of track from center to center of tire. CAST IRON SEAMLESS SKEINS, metal warranted one quarter inch thick, and take in more wood than any other Skein in the market. Write for prices. We do not manufacture any wheels.

The GRINNELL AUTOMATIC SPRINKLER

Recently Modified. Especially Constructed to Resist the Effects of Adhesive Corrosion or Sediment, both Inside and Outside the Sprinkler.

FOR INFORMATION AND PROPOSALS APPLY TO

PROVIDENCE STEAM & GAS PIPE CO., Providence, R. I.

BOSTON OFFICE, 173 Devonshire Street.

CHICAGO OFFICE, 115 Monroe Street.

AUTOMATIC FIRE ALARM & EXTINGUISHER CO. (Limited),

418 BROADWAY, NEW YORK.

PHILADELPHIA OFFICE, 49 S. Fourth Street.

H. Mueller Mfg. Co.
MANUFACTURERS OF
WATER & GAS SPECIALTIES
Office & Manufactory,
220-222 E. MAIN ST.
OUR GOODS CAN BE PURCHASED FROM ANY
PLUMBING, WATER OR GAS WORKS SUPPLY HOUSE.

PRINTING PRESSES

TYPE AND PRINTERS' MATERIALS
OF EVERY DESCRIPTION.

THE JOHN RYAN CO.

BALTIMORE, MD.



PREMIER FLOUR

OF AMERICA.

Patapsco Flouring Mills

ESTABLISHED 1774.

PERFECTION IN FLOUR.

PATAPSCO SUPERLATIVE PATENT,

THE PREMIER FLOUR OF AMERICA,

IS UNSURPASSED FOR BREAD, BISCUIT OR PASTRY.

ASK YOUR GROCER FOR

Patapsco Superlative Patent,

Medora, High-Grade Winter Patent,

Baldwin Family.

Patapsco Family Patent,

Orange Grove Extra,

C. A. GAMBRILL MFG. CO.

Office, 214 Commerce Street, Baltimore, Md.

Look Carefully through this paper and you may find an advertisement of some machinery or other goods that you are in need of. Preserve this copy for future reference.



Issues Policies of Insurance after Careful Inspection of the Boilers, covering Loss or damage to property, and Loss of Life and Personal Injury

ARISING FROM STEAM BOILER EXPLOSIONS.

Full information concerning the plan of the Company's operations can be obtained at the COMPANY'S OFFICE, Hartford, Conn., or at any Agency.

J. M. ALLEN, President.
J. B. PIERCE, Secretary.

W. B. FRANKLIN, Vice-Prest.
F. B. ALLEN, 2d Vice-Prest.

BOARD OF DIRECTORS:

J. M. ALLEN, President.
FRANK W. CHENEY, Treas. Cheney Bros. Silk Mfg. Co.
CHARLES E. BEACH, of Beach & Co.
DANIEL PHILLIPS, of Adams Express Co.
RICHARD W. H. JARVIS, Pres. Colt's Fire Arms Mfg. Co.
THOMAS O. KIDDER, Pres. of the United States Bank.
LEVERETT BRAINARD, of The Chase, Lockwood & Brainard Co.
GEN. W. B. FRANKLIN, 1st Vice-Prest. Colt's Patent Fire Arms Mfg. Co.
G. C. KIMBALL, Pres. Smyth Mfg. Co., Hartford, Conn.
MAYLAND DEPARTMENT—LAWFORD & McKIM, Gen. Agents, 25 S. Holliday St., Baltimore.

ESTABLISHED 1876.

BUDDEN AND SON.
10 & 12 W. WALL ST.
ATLANTA, GA.
ENGRAVERS.
Bonds. CERTIFICATES OF STOCK. Office Stationery. LABELS. SHOW CARDS & ADVERTISING NOVELTIES.

The AULT & WIBORG CO.
PRINTING INKS.
CINCINNATI.
BRANCHES:
CHICAGO, NEW YORK,
332 DEARBORN ST. 65 BERNMAN ST.
A. & W. INK USED ON -
THIS PUBLICATION.

The Markets.

OFFICE MANUFACTURERS' RECORD,
BALTIMORE, December 16, 1891.

Great expectations of an enlarging trade after the first of the new year are very generally entertained among iron and steel makers and brokers in all sections of the country. Buyers would not object to paying higher prices if assured of a general improvement more than to buy at present low prices and take the risk. Hence the markets everywhere are not active. Throughout the South the reports are of a conservative condition. A few large Northwestern buyers have placed long-running contracts, and in Chicago large sales of charcoal iron have been made in a number of instances. It is also stated that large sales of Bessemer will soon be made, as well as of spiegel and ferro-manganese. The Western markets are by no means dull. A good deal of correspondence is going on. Buyers seem to be getting ready to buy and sellers getting ready to sell. Throughout the East markets are quiet, excepting for slabs and billets, in which branch there is considerable activity. Prices have been crowded to their lowest, and contracts running into 4,000 or 5,000 tons have been lately closed. Quite a number of engineering enterprises are passing through the preliminary stages, and by February or March the promoters expect to be in the market for material—iron and steel plate, shapes, pipes and steel rails. For the rest of the year there will be but little new business placed in Eastern markets, while in one or two Western markets there are rumors that large orders for steel rails may be placed before the end of the year. A great deal of ship material will be ordered during the first 30 or 60 days of the new year. Car builders are now figuring on orders aggregating 15,000 cars. Bridge-work specifications under consideration run into thousands of tons. Bar-iron makers expect to profit by the extraordinary requirements of railroads for cars. Locomotive makers speak encouragingly of the future. There is, however, more or less uncertainty as to when the anticipated improvement will set in. When it does come it will find moderate stocks in almost every branch of the iron trade, but a greater capacity than ever before to turn out work.

W. C. RINEARSON, general passenger agent of the New York, Lake Erie & Western Railroad, has resigned that position to take charge of the passenger traffic of the East Tennessee, Virginia & Georgia and the Queen & Crescent systems. Mr. Rinearson's resignation will take effect on December 15, and he will assume the duties of his new position January 1. The New York Times says: "President S. M. Felton, Jr., of the East Tennessee, is a staunch believer in Mr. Rinearson's capabilities. It was Mr. Felton, then first vice-president of the Erie, who induced Mr. Rinearson to leave the Pennsylvania Road in 1885 and enter the employ of the Erie as general Northern passenger agent in Buffalo. Subsequently Mr. Rinearson was made general assistant passenger agent of the Erie system in charge of the New York, Pennsylvania and Ohio roads. He was promoted to be general passenger agent in August, 1890. His administration has been eminently successful, the latest annual report showing that the earnings of the passenger department last year were nearly \$500,000 in excess of the previous year." This does not mean the removal of General Passenger Agent B. W. Wrenn, of the East Tennessee, Virginia & Georgia, who will continue in his present position. Mr. Rinearson's position is a higher one, and he will have control of the passenger traffic of both the East Tennessee, Virginia & Georgia and the Queen & Crescent.—Savannah News.

SALASEE PLASTERING FIBER.

Superior to Hair in all respects and costs less.
"This fiber was used exclusively in the building of the TAMPA BAY HOTEL CO., because it made better work than any article offered in any market."—J. A. WOOD, Architect, 15 Broadway, New York. Address, LOOMIS MFG. CO., Fernandina, Fla.

ACME CEMENT PLASTERING

You can have a wall on your house as hard as portland cement at lime mortar prices. Estimates furnished for work at any point.

CULVER & LONDON,
719 13th Street, Washington, D. C.

IRON AND BRASS FOUNDERS.

HAIGHT & CLARK,
Albany, N. Y.
Fine Gray Iron, Brass and Bronze Castings. Send samples for estimate. Nickel, Brass and Bronze Plating. Agents for the GOETZ BOX ANCHORS and POST CAPS.

TAYLOR.

BEST YORKSHIRE BAR IRON,
The best material for Staybolts, Piston Rods, Crank Pins, etc.

USED BY LEADING RAILROADS.

Sole Representatives in the United States,
B. M. JONES & CO.

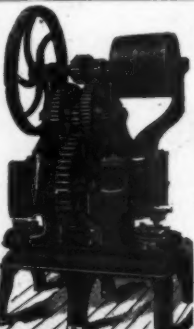
11 and 13 Oliver Street, BOSTON.
143 Liberty Street, NEW YORK.

TACK MACHINES RIVET MACHINES

WM. A. SWEETSER,
BROCKTON, MASS.

**Power Punches
—AND—
Shears
Combined.**

Double Power Punch.
Double Power Shears.
G. D. COLTON & CO.
GALESBURG, ILL.



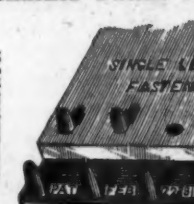
CRAWFORD'S PATENT EXHAUST PIPE HEAD

Prevents the spray nuisance. Saves your roofs and sidewalks by separating the water from exhaust steam. The condensation can be used by returning it into tanks on the floors of your building for fire purposes. Should be used in all buildings where the exhaust pipe goes through the roof. Guaranteed to work satisfactory, well made and the cheapest head on the market. 30 days' trial given responsible parties. WRITE FOR PRICES. CLEVELAND STEAM FITTING & SUPPLY CO., Cleveland, Ohio.



Thacher Patent Belt Fastener.

Builders' Hardware.
SINGLE LEATHER FASTENER.
THE OLAFSEN MFG. CO.
CLEVELAND, OHIO, U. S. A.



We Guarantee DIXON'S BELT DRESSING to Prevent Slipping and Preserve the Leather. Send for Circular and Testimonials. JOS. DIXON CRUCIBLE CO., Jersey City, N. J.

REGISTERED TRADE MARK
CANDY'S
AMERICAN
BELTING
The "Original Candy"
Sawed Cotton Duck Belting.
Especially adapted for Main Drivers, Saw Mills, Cotton Gins, Cotton Presses, and for all places where belts are subjected to moisture or atmospheric changes, the "CANDY" stands paramount.
For further information, prices, etc., write
The Candy Belting Co.
BALTIMORE, MD.
Southern Agents.—L. M. Rumsey Mfg. Co., St. Louis, Mo.; Smith-Courtney Co., Richmond, Va.; Atlanta Rubber Co., Atlanta, Ga.; Baker, Sloo & Co., New Orleans, La.



THE BEST & CHEAPEST
BELTING
IN THE WORLD
STITCHED CANVAS BELTING
THE CHESAPEAKE BELTING CO.
BALTIMORE, MD.



The Only Manufacturers of Raw Hide Belting in the Country.
The Chicago Rawhide Mfg. Co.
—MANUFACTURERS OF—
RAWHIDE BELTING, LACE LEATHER,
ROPE, LARIATS, FLY-NETS,
Picker Leather, Stock and Farm Whips, Washers, Hame Straps, Hame Strings, Halters and other Rawhide Goods of all kinds, by Krueger's Patent.
This Belting and Lace Leather is not affected by steam or dampness; has more grip than any other; never becomes hard; is stronger, more durable and the most economical belting made. Especially adapted for the Southern trade on account of its resistance to moisture. The Rawhide Rope for Round Belting Transmission is SUPERIOR TO ALL OTHERS.
73 and 75 OHIO STREET, CHICAGO, ILL.

LEVIATHAN BELTING
Positively Unequalled for Strength, Durability and Traction Power; Unaffected by Heat, Steam or Water.
BELTS FOR MAIN DRIVING AND WORK OF A HEAVY NATURE.
SOLE MANUFACTURERS,
MAIN BELTING CO.
1219-1235 Carpenter St., PHILADELPHIA.
248 Randolph St., CHICAGO.
Send for Price-Lists and Samples.



COPYRIGHTED 1888 BY J. A. SHULTZ.
SHULTZ BELTING CO.
Manufacturers of
SHULTZ PATENT
FILLED LEATHER BELTING
IT BELTS THE EARTH AND MAKES THE MOON SPIN LIKE A TOP
Shultz Patent Leather Woven Link Belt
ALL LEATHER.
NO IRON ROD OR HINGE, OLD STYLE.
LEATHER LINK AND IRON ROD BELT.
AND ROPE TRANSMISSION SUPERSEDED.
OUR BELTING IS TANNED ON THE SURFACES ONLY. INTERIOR IS RAWHIDE.
THE ONLY PERFECT BELT MADE, NO SLIPPING OR LOST MOTION.
SAVE YOUR POWER. YOUR BELTS. YOUR MONEY.
BY COVERING YOUR PULLEYS WITH SHULTZ PATENT LEATHER PULLEY COVERING.
RAWHIDE LACE LEATHER AND PICKER LEATHER.
ST. LOUIS, MO.



Read What a Michigan Miller Says of the Case Company.

STURGIS ROLLER MILLS.

BAUER & BUHRER, Proprietors.

STURGIS, MICH., July 12, 1890.

THE CASE MANUFACTURING CO., Columbus, Ohio.

GENTS—We started mill July 7th. The 12 pair 2x18 rolls you furnished us worked perfectly. They are so easy to adjust, so simple to handle, feed so regularly, grind so nicely and even and work so smoothly on the whole, that we have no hesitancy in stating that we cannot see how they can have a superior, if equal. Aside from their perfect work, they are models of beauty and finish, and a decided ornament to any mill. We enclose clippings from papers. We are, with best wishes, Very truly yours,

BAUER & BUHRER.

For full particulars regarding the BEST FLOUR OR CORN MILL MACHINERY, address

The Case Manufacturing Company, Columbus, Ohio.

IRON MARKETS.

CINCINNATI, December 12, 1891.

Sellers of iron had anticipated that December would be perhaps the lightest month of the year, and there has been not much disposition to press for new business. It seems to be a rule in the iron business, however, that the unexpected happens. Instead of marked dullness there has been a good degree of activity. Orders booked so far this month are in excess of corresponding time in November. Prices, however, have felt the effect of accumulation of stock and the prevalence of bear talk. Some grades of Southern iron have lost all the advance that was scored in August and September, and have sold as low as at any time during the summer. It is not easy to make sales for immediate delivery, and furnaces that have been unwilling to book forward orders have found it very difficult to keep their yards clear. The embarrassment of one large Southern company is not thought by those well informed to have had any particular bearing on the situation South. Its furnaces have not been located so favorably for cheap material, and from appearances it was not a fair representation of Southern iron manufacturing interests. It is said that very low prices have enforced economies and improved furnace practice all through the South, and this has done much to reduce cost and improve quality of iron. It is known that some of the large companies that awhile back were barely holding their own are now making some money. On the whole, it can be said that production in the South is not likely to decrease in consequence of ruling low prices.

The underlying elements of the market continue to gain in strength beyond question. Large orders for cars, locomotives and steel rails have been placed this month by the railroads. This has not created an extra demand for wheel iron, etc., that might have been expected, because prior to the giving out of such orders many of the car works here were running very light and had iron in stock. The demand, however, for charcoal iron is very considerably improved, and every prospect points to greater improvements in the near future. Many railroad companies are still holding back orders for rolling stock until increased business or special financial arrangements warrant placing them. The accumulation of funds at money centers, and the consequent improvement of demand for railroad; municipal and water-works bonds, point strongly to a revival of activity in such parts of the iron trade as depend upon railroad and municipal improvements, etc. The results are slow in realization, because the temper of the country is conservative. It may take several months of next year before the legitimate effects are seen, but they are bound to come. The particular question which concerns iron men, however, is whether production will go on increasing so rapidly as to further increase stocks and prevent any improvement in values.

We quote for cash f. o. b. cars Cincinnati:
Southern coke No. 1 foundry.....\$14 75@15 50
Southern coke No. 2 foundry and
No. 1 soft.....13 75@14 25
Hanging Rock coke No. 1.....16 50@17 00
Hanging Rock charcoal No. 1.....19 75@21 00
Tennessee charcoal No. 1.....17 00@17 50
Jackson Co. stone coal No. 1.....16 50@17 00
Southern coke, gray forge.....13 75@14 00
Southern coke, middled.....12 50@13 75
Standard Alabama C. W.....19 00@20 00
Tennessee C. W.....18 00@19 00
Lake Superior C. W.....19 50@20 50

CHICAGO, December 12, 1891.

Chicago market continues to move on in the same way described last week. Small orders are numerous; here and there a large transaction has been consummated, these being cases where consumers find an opportunity for buying at cut figures by placing contracts now. Several instances may be noted of coke furnaces which have been obliged to make sacrifice of price in order to move accumulated stocks.

Charcoal irons remain inactive; rumors are current of more or less sales ranging in price from \$16 50 to \$17 00 Chicago. Reputable brands are all holding firmly to the latter figure as minimum; two or three sales of one Birmingham brand have been made at from \$17.50 to \$17.75.

One encouraging feature is the fact that various of the car works are contemplating buying round lots of raw material for delivery during first six months of next year. Some additional orders for rolling stock have lately been placed, but the volume of business in this direction is yet to come.

We quote for cash f. o. b. Chicago:
Southern Coke No. 2 foundry.....\$15 25@16 00
No. 2 soft.....14 50@15 25
Lake Superior charcoal, Nos. 1-6.....17 25@18 50

ST. LOUIS, December 12, 1891.

The market is full of activity; many of the smaller concerns are now contracting for six months of next year on all grades of iron. During the last few months hand-to-mouth purchases predominated, but now that the market is in a stronger condition, and it has been proven that prices have reached bottom, winter trade just starting, and the improved aspect in finance, the outlook is more encouraging than at any time during the year, and heavy buying for legitimate consumption is noticed on all sides.

We quote for cash f. o. b. St. Louis:
Southern Coke No. 1 Foundry.....\$15 50@15 75
" " No. 2 ".....14 50@14 75
" " No. 3 ".....13 75@14 25
" Gray Forge.....13 25@13 50
" Charcoal No. 1.....17 25@17 75
" No. 2.....16 75@17 25
Missouri Charcoal No. 1.....15 50@16 00
" No. 2.....15 00@15 50
Ohio Softeners.....18 00@19 00
Lake Superior Car Wheel.....19 50@20 00
Southern.....19 50@20 00
Frick's Connellsville Foundry Coke.....5 65

BUFFALO, December 12, 1891.

The present situation is such, owing to the large production and great backwardness of buyers to purchase before January 1, that exceedingly low figures are now being made on every description of pig iron.

We doubt if present prices can be duplicated two months later, or even one month later. Indications begin to multiply that there will be a very considerable increase in activity early in the new year.

We quote for cash f. o. b. Buffalo:
No. 1 X Fdy., Strong, Coke Iron, Lake Superior ore.....\$16 00
Ohio Strong Softener No. 1.....16 25
Jackson County Silvery No. 1.....18 25
Lake Superior Charcoal.....18 50
Tennessee Charcoal.....18 00@19 00
Southern Strong No. 1.....16 75
Southern Soft No. 1.....16 25
Alabama Car Wheel.....19 75@21 75
Hanging Rock Charcoal.....21 00@22 00

PHILADELPHIA, December 12, 1891.

The sales of pig iron this week have been mostly in sizable lots for delivery running into first three months of next year. Had iron furnaces and steel works taken all the business offered them for extended delivery at present prices, the aggregate of sales would have been the largest on record for several years. The contrast between the feeling among buyers this year and that existing this time last year is suggestive.

We quote f. o. b. Philadelphia:

Standard Ala. No. 1 X.....\$17 00@17 25
" " No. 2 X.....16 00@16 25
Neutral Ala. forge.....14 25@14 75
Ala. High Silicon Softeners.....16 50@17 00
Standard Penn. No. 1 X.....17 75@18 00
" " No. 2 X.....16 75@17 00
Ohio Softeners, No. 1.....19 00@19 50
" " No. 2.....18 00@18 50
Standard So. C. W. Bibb, Atlanta, etc. 22 50@23 50
Lake Superior C. C., any number.....20 00@20 50
Bessemer Steel Billets and Slabs.....26 50@27 00

ROGERS, BROWN & Co.

BIRMINGHAM, ALA., Dec. 12, 1891.

The iron market during the past week has been without special feature. Enquiries have been light, and melters complain of dull business, but seem to expect an improvement after the holidays.

The furnaces maintain their large rate of production, but are sold ahead sufficiently to make them firm in their views as to prices.

There has been some inquiry for mottled iron, which none of our furnaces will offer.

Some bids for gray forge for delivery running into 1892 have been declined.

The unprecedentedly low price of cotton affects unfavorably not only the demand for iron from Southern territory, but for all commodities, and has a depressing effect on every class of business.

A matter of vital importance to this district, viz., the establishment of works for converting our iron into steel, which has been too long neglected, is receiving more consideration, and it is believed that the discussion will result in steps being taken to supply this chief need of the district.

A movement has been on foot for some months for the erection of a large steel plant by gentlemen connected with the Tennessee Coal, Iron & Railway Co., and it is thought by some that this undertaking will be accomplished, but in view of the proposed location of the works at Ensley City, six miles from town, many of our business men, who think the works should be located in Birmingham proper, have not given the project the support that was expected.

A plan is now being discussed for the location of steel works in the city, irrespective of the success or failure of the other enterprise, and this plan, which will be headed by some of our most progressive and influential men, will unquestionably receive the hearty co-operation of our business community.

The urgent necessity for this outlet for our resources is admitted on all hands, and the demand will be met in the near future. The opportunity is a great one, and will create the man who will be equal to the accomplishment of the undertaking.

The demand for steam coal is larger than it has ever been before, but this is largely due to the fact that the railroads are stocking up in anticipation of the light supply which usually accompanies and follows the holiday season. Grate coal is in less demand, and the movement shows a falling off as compared with last year. This is largely due to the laying in of heavier stocks than usual by dealers during the past summer.

We quote f. o. b. cars Birmingham:

FIG IRON.
No. 1 Foundry.....\$12 25
No. 2 ".....11 00@11 50
No. 3 ".....10 50
No. 1 Soft.....11 00@11 50
No. 2 ".....10 50
No. 1 C.....12 25
No. 2 ".....11 50
Gray Forge.....10 50
Mottled.....9 50

HARDY & UNDERWOOD.

TRADE NOTES.

ANOTHER example of the tendency of manufacturers to locate South is found in the removal of the entire plant of the Enterprise Safety Elevator Co. from Cincinnati, Ohio, to Chattanooga, Tenn. Operations will commence at the latter place within a few days, and everything is expected to be completed by February 1, 1892.

WATER motors are coming into very general use in many places and for many purposes, and those who contemplate using one will find the catalogue of the Backus Water Motor Co., of Newark, N. J., of much interest. These motors are used for driving all kinds of light machinery, organs, sewing machines, dental engines, etc., and it is claimed that over 15,000 are now in actual operation. The Backus company also manufactures patent exhaust ventilating rotating and column fans.

Twist drills of various makes have long been in use, but the New Process Twist Drill Co., of Taunton, Mass., has made improvements in these tools that are worthy of notice. The new in their process is the fact that all drills of their manufacture larger than 7/32 of an inch are hot forged, and not milled, by which means the drill retains the full strength of the bar of steel from which it is made. Their latest improvement is in the manufacture of bit-stock drills for both wood and metal-working. In making the smaller sizes of bit-stock drills it has been the custom to insert the drill in a malleable iron shank. This company has discarded the inserting process, except in the three smaller sizes—2, 3 and 4/32—and now make each drill larger than 4/32 of one piece of the best tool steel, forging both shank and body of drill, thus making the drill perfectly solid, tough and firm. Every drill is nicely finished, with size in 32ds plainly stamped on the shank. By offering to send sample to any party who will take the trouble to send his address on a postal card, they give an opportunity to any one to make a very practical test of the merits of their product.

THE year of 1891 is reported to have been a very prosperous one for the J. R. Alsing Co., of New York, especially in the line of their pulverizing cylinders. They have sold six of the largest size of these cylinders to the Natural Dam Pulp Co., Gouverneur, N. Y., for pulverizing fibrous talc, in addition to the six sold to them some time ago. They have also sold to the Iron Clad Manufacturing Co., New York, 2 No. 3 and 1 No. 6; to the C. Pardee Terra Cotta Works, Perth Amboy, N. J., 2 No. 4 and 2 double jar mills, and different sizes to the Standard Manufacturing Co., Pittsburg, Pa.; Parke, Davis & Co., Detroit, Mich.; Auburn Hollow Ware Co., Auburn, N. Y., and many others. Besides this the J. R. Alsing Co. has made rapid progress in the addition of new machinery, among which may be mentioned the large disintegrator, which is largely used in the cement and phosphate trade, and has found a ready market in the South, especially in Florida phosphate fields. They have also lately purchased the sole agency of a valuable machine, which they term a wonder, and which they expect to place on the market by January 1, 1892. This company has recently elected a new staff of officers, which, it is believed, will give a new impetus to their constantly increasing business.

Eastern Lumber Markets

[Special Cor. MANUFACTURERS' RECORD.]

NEW YORK, December 15, 1891.

The railroad people who need yellow pine next year are beset with sellers to buy now, or at least soon. Some sales of this sort have been made, but the managements are not in favor of speculating in lumber even to the extent of their wants. The stocks of pine are sufficient to prevent any market fluctuations under a moderate and usual demand. The distribution going on in a small way is quite satisfactory.

White pine keeps moving in a small way in both local and suburban channels at low and steady prices. Retailers are profiting by this. Wholesalers are watching Western markets, but will not depart from their accustomed winter policy, unless something very unexpected turns up.

The lumber interests suffer at the hands of derelict city officials as regards wharfage facilities, who play into the hands of railway corporations. A good, strong lumber trade organization might count in a contest of this sort, for certainly some fighting is needed. Nothing would give so great an impulse to building operations as the inauguration of a system of rapid or more rapid transit than is now possessed by this city. The city is congested, and tens of thousands would live 10 miles from City Hall if they could reach it in 20 minutes, which is the problem, briefly stated, which the rapid transit commission has to solve. All New York is deeply interested in this matter, and when it is taken hold of practically, the lumber trade will enjoy a small-sized boom. This year's experience on canals is in favor of steam canal-boats, as against horses, and in favor of the iron horse as against the steam canal-boat. Business is quiet at Albany.

Despite all the warnings we have had of the possibility and probability of an advance all around next season in lumber, due to the enlarging demands, wholesalers and retailers are taking things very easy and will not be frightened. The hardwood dealers, especially, have something to gain or lose. Their stocks cannot always be made up so quickly. A careful survey of hardwood stocks have shown that should buyers generally conclude to stock up at the same time, prices would advance. But buyers are counting on the continuance of a regular even demand. Oak timber is active, and lath have been selling well. Carriage and wagon factories are busy, and furniture manufacturers are working full time and with limited stocks.

Western advices are good. Furniture manufacturers are buying more heavily than usual of hardwoods. The cargo trade at Chicago this year is about equal to last year. The selling prices of most kinds of lumber throughout the South has been stationary for three months. Should white pine advance, as a good many conservative men think, it will naturally widen the market for Southern pine in Northwestern markets, and especially so if car-building is prosecuted as vigorously as it now seems probable it will be. Throughout the West lumber quotations are a little stronger than three months ago, and at Chicago the stocks now on hand are some 40,000,000 to 50,000,000 feet lighter than a year ago, with much brighter prospects for a heavier demand next year.

THERE are now 12 cigar factories in the fourth ward of Tampa, Fla., in which more than 1,500 people find steady employment, and from which every Saturday about \$30,000 are disbursed in wages. In 1885 this ward was a tract of pine woods. In October, that year, a Key West manufacturer decided that this would be a good point for the business, and bought 40 acres, which he had cleared, and then put up the first factory. Others followed, and now Tampa rivals Key West as a cigar-making town.

THOS. J. SHRYOCK & CO.

WHOLESALE

Lumber and Commission Merchants,
YELLOW PINE and HARDWOOD,
Shryock's Wharf, Baltimore, Md.
Correspondence Solicited.

JESSE THOMPSON & CO.

Georgia Pine Timber,
RIFT FLOORING.

Delivered at any Point. Prices Quoted.
AUGUSTA, GA.

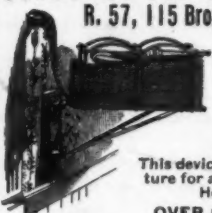
THE EDWIN BELL & SONS CO.

MANUFACTURERS OF
Nail Kegs, Flour and Fruit Barrel
Stock, also HOOP MACHINERY.
Write for prices on Hoops, Heading and Staves.
Mills, Northwestern Ohio.

Headquarters, YOUNGSTOWN, OHIO.

JNO. C. N. GUIBERT,

R. 57, 115 Broadway, New York



PATENTEE AND
MANUFACTURER OF

— THE —
"SWINGING
HOSE-RACK"

This device is a necessary fixture
for all Buildings where
Hose is used.

OVER 8,000 IN USE.

Estimates for Racks and Hose
furnished upon application.
Send for Catalogue B.

Greer Machinery Co.

KNOXVILLE, TENN.

Wholesale Automatic, Corliss
and Holsting

ENGINES.

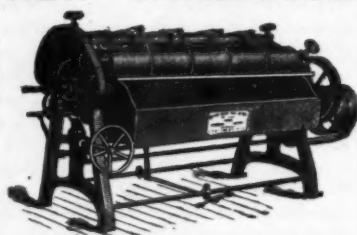
Stationary and Portable

Engines and Bolders, Saw and Grist Mills,

WOODWORKING MACHINERY, &c.

SEND FOR OUR

NEW CATALOGUE.



Troy Laundry Machinery Co.

(LIMITED.)

FACTORIES: 648 and 650 Fulton Street, Troy.
395 to 401 Fifth Avenue, Chicago.

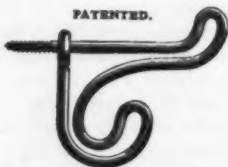
SALESROOMS: 15 Warren Street, New York.
381 & 383 Mission St., San Francisco.

SEND FOR NEW PRICES

GEM WIRE

Coat and Hat Hooks

PATENTED.



MANUFACTURED BY

VAN WAGONER & WILLIAMS CO.

89 Beekman St., New York.

Catalogue of Spring Hinges, Door Springs,
Wire Coat and Hat Hooks, Blind Adapters, &c.,
on application.

PORTABLE FORGES

For RIVET HEATING and General
Light Blacksmithing.



The only Portable Forge with a bellows that
gives an absolutely continuous blast, and is
easily worked. No legs to break, no gear wheels
belts or bearings to get out of order. Always
ready for use. No break-downs to cause delay
when used out of shop. Requires no oiling.

PITTSBURGH PORTABLE FORGE CO., Ltd.

Manufacturers of PORTABLE FORGES, IRON
WHEELBARROWS, SHEET IRON WORK,
and Blacksmithing of all kinds.

2520-2522 Smallman Street, PITTSBURGH, PA.

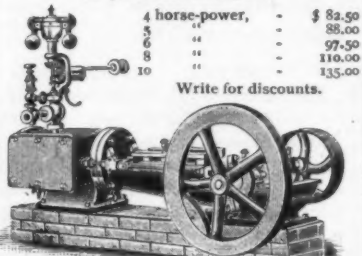
Globe Machine Works

MANUFACTURERS OF

CENTER CRANK ENGINES

4, 5, 6, 8 and 10 Horse-power.

Best made. Lowest prices. Work guaranteed.
Furnished with or without boiler. Send
for prices and description.



4 horse-power,	\$ 82.50
5 "	88.00
6 "	97.50
8 "	110.00
10 "	135.00

Write for discounts.

137-139 W. Second St., Cincinnati, O.

W. J. CLARK & CO., Salem, O.

MANUFACTURERS OF

Elevating & Conveying Specialties

Sole Manufacturers of the "SALEM" ELEVATOR
BUCKET, for Mill and Elevator work, Ear Corn,
Corn and Cobs, Ores, Coal, Broken Stone, &c.

Send 9 cents (stamps) for postage on Sample
Salem Bucket and Illustrated Catalogue.

A. B. SEE

MANUFACTURING CO.

ELEVATORS.

116 to 120 Front St., BROOKLYN, N. Y.

Send for Circular.

JAMES H. CURRAN,

MANUFACTURERS OF

Passenger and Freight Elevators,

DUMB WAITERS.

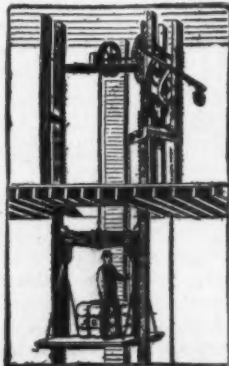
Office & Works, 132 W. Second St., CINCINNATI, O.

Write for Circular.

Bates' Hand Elevators

Pat. April 24, 1871. Released July 25, 1894.

OVER 6,000 IN USE.



Adapted for Warehouses, Stores, Factories,
Hotels, Public Institutions and every place where
merchandise, &c. is transferred from one story to
another.

JAMES BATES,

PATENTED.

No. 1, 3 & 5 President Street, BALTIMORE.

JOYCE, CRIDLAND & CO.

DAYTON, O.

MANUFACTURERS OF

J. O. Joyce's Patent Lever Jacks,

Compound Lever

SCREW JACKS.

AND BENCH VISES.

30 varieties of Lever and Screw
Jacks for railroad use.
Please send for illustrated catalogue.



QUARTER OF CENTURY OLD



CHEAP WATER PROOF

Applied by our
PATENT MASTERS
1/4 the time and 1/4 the labor of any other way. Does not
ROT NOR RATTLE. It is an Economical and DURABLE SUB-
STITUTE for PLASTER on walls. Ornamental CARPETS
and RUBBER of same material, cheaper and better than Oil
and 75% cheaper than any other. Send for Sample Free.

Address W. H. FAY MANILLA CO.

316, 318 & 320 Point St., CAMDEN, N. J. Agents in all
principal cities in the United States.

THE GREAT IMPROVEMENT IN

ROOFING.

We are now ready to supply the product of
entirely new machinery and processes just com-
pleted by which we not only have greatly improved
the strength and durability of our well-known
ASBESTOS ROOFING, but have also secured a
degree of uniformity never before attained in any
similar fabric. We offer this as the PERFECTED
form of the portable Roofing which we have manu-
factured with continued improvements during the
past thirty years, and as the most desirable Roofing
for general purposes.

The important features of our recent improve-
ments, for which patents have been allowed in this
country and in Europe, are described in our new cir-
cular, which, with samples, will be sent free by mail.
Our Asbestos Roofing is now in use upon Fac-
tories, Foundries, Cotton Gins, Railroad Bridges, Cars,
Steamboats, etc., in all parts of the world.
It is supplied ready for use, in rolls of 900 square
feet, and weighs with Asbestos Roof Coating, ready
for shipment, about 85 pounds to 100 square feet.
It is adapted for steep or flat roofs in all climates,
and can be readily applied by unskilled workmen.
There are inferior imitations of our Asbestos
Roofing; purchasers are cautioned.

Samples and Descriptive Price List free by mail.

H. W. JOHNS MANUFACTURING COMPANY,

SOLE MANUFACTURERS OF

H. W. Johns' Liquid Paints,
Fire-Proof Paints, Building Felt,
Steam-Pipe and Boiler Coverings,
Asbestos Steam Packings, Gaskets, etc.
Vulcanized Moulded Rings, Washers, etc.

87 MAIDEN LANE NEW YORK.

BRISTOL'S

Recording Pressure Gauge

Makes a continuous record day and night of
Steam, Water, Gas or Air Pressure. It shows at
a glance whether the boiler has received the
attention upon which largely depends its

SAFETY AND ECONOMY.

Simple, Reliable and Cheap. Hundreds in use.
Will send on trial to responsible parties. Address

M. P. SATTERTHWAITE.

237 Bond Street, Cleveland, Ohio.

Selling Agents for Northern Ohio.

Here's Another Perfect Tool.

THE SCRANTON

ROD CUTTER.

8

Printed Reasons Why on
Circular.

WANT ONE?

THE BELDEN MACHINE CO.

NEW HAVEN, CONN.

PATENT VENETIAN BLINDS AND METALLIC WINDOW SCREENS.

S. J. FISHER
510-512 TACOMA BLDG.
CHICAGO.

Sliding Blinds and Screens.

The "Willer" Sliding Blinds are made in sections to slide vertically, are balanced by springs, contain Rolling Slats wherever wanted and are furnished complete, including finish and hardware.

The "Willer" Folding Blinds are furnished with our improved Rolling Slats without the usual wooden rod in front.

"Regular" Inside Folding Blinds, as furnished by us, are of better material and workmanship than usually supplied by others.

The "Willer" Sliding Window Screens slide up and down, are balanced by springs and cover either half of the window.

The "Willer" Screen Doors are noted for their unique and tasty designs and their superior quality of workmanship.

ALL GOODS MADE TO ORDER ONLY.
CATALOGUE ON APPLICATION.

Willer Manufacturing Co.,
MILWAUKEE, WIS.

We have erected STAND PIPES

At the following Places:

Kankakee, Ill.,	203124
Corwall, Ontario,	203130
Salisbury, N. C.,	203100
Washington, Ind.,	203100
Beaver Dam, Wis.,	203124
Waterford, N. Y.,	203124
Berwick, Pa.,	11345
Homer, N. Y.,	25340
Cobourg, Ontario,	162116
Marshall, Mich.,	203100
Hamburg, N. Y.,	152125
Canton, N. Y.,	203124

SHARON BOILER WORKS,
(Limited),
SHARON, PA.

MARIS MACHINE CO.
2343-45 CALLOWHILL ST.,
PHILADELPHIA.

Teal Portable Hoist.
SWING and BRIDGE
CRANES
OVERHEAD TRACK,
SWITCHES, Etc.

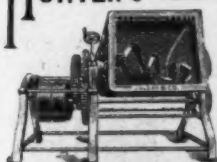
The Cincinnati Screw & Tap Co.

Manfrs. of and Dealers in

Machine Set
Cap Screws.

SPECIAL TAPS AND DIES.
COLD-PUNCHED NUTS.
All kinds of Turned, Milled and
Stamped Work in Metal.
CINCINNATI, OHIO.

HUNTER'S UNIVERSAL MIXER.



For Mixing
Putty, Clay,
White Lead
and all kinds
of heavy
substances.

Send for catalogue of Sifters and Mixers, Paste
Mixers, Dough Mixers, Emulsion Mixers, Pill
Mass Mixers and other Special Machinery.

J. H. DAY & CO., Cincinnati, O.
Branch Office, 35 Murray St., New York, N. Y.



THE Lackawanna Grease Cup

Has a wide reputation as the
CLEANEST, MOST EFFEC-
TIVE and MOST
ECONOMICAL device on
the market for the lubri-
cation of machinery bearings.

Liberal Discount to the Trade.

MANUFACTURED BY
LACKAWANNA LUBRICATING CO.
Scranton, Pa.

Powell's Pat. Signal Oilers FOR ENGINE OR DYNAMO USE.



Oil Dropping while
Machinery Runs.
THE WM. POWELL CO. 80 TO 84 CAN ST.
BALTIMORE, MD.

BICKFORD DRILL CO.



Upright and Radial
DRILLS.
Boring and Turning
MILLS.

Write for Prices and
address

173 East Front Street,
CINCINNATI, OHIO.

Blacksmith's Drills.



Fig. 730, No. 1 1/2.

Has 1 in. Steel Spindle,
bored for 3/4 in. Drill
Shanks.

Extension Crank, 12
in. Swing.
DRILLS 3/4 IN.
55 POUNDS, \$6.00.
Nos. 2 and 3 are
Double Back Geared,
Self-Feed.
\$10 and \$14.

TRY A SAMPLE.

The Silver Mfg. Co.

SALEM, OHIO.

FOR THE BEST MILL FOR GRINDING AND DISINTEGRATING Phosphates, Clays, MINERAL AND ALL DRUG MATERIALS

COLLAPSED WITH
Stedman's Foundry & Mach. Wks., ANTOYA, IND.

Veneering & Handle Machinery.

The I. E. MERRIT MACHINERY CO.

MANUFACTURERS OF

Woodworking Machinery

FOR
Veneer, Fruit Package and Cheese Box
Factories, Handle, Spoke, Hoop and
Turning Factories, Heading, Stave
and Shingle Mills.

55, 55 & 60 Market St
LOCKPORT, N. Y.

WOOD-WORKING MACHINERY

TO FULLY EQUIP
Planing-Mills, Sash, Door, Blind
and Furniture Factories.

SHAFTING, HANGERS and PULLEYS

BARREL MACHINERY

(50 Varieties.)

—MANUFACTURED BY—

H. & B. HOLMES,
78 Chicago St., BUFFALO, N. Y.

McShane BELL Foundry

Fine Iron and Brass Castings Made to Order.
Manufacture those cele-
brated Bells for Tower
Clocks, Court-Houses,
Custom Mills, Factor-
ies, etc. Prices and cata-
logues sent free. Address
H. McSHANE & CO.
Baltimore, Md.
Mention this paper.

ATLANTIC TRANSPORT LINE.

BETWEEN BALTIMORE AND LONDON.
Calling at Swansea and Philadelphia on the
outward passage.

S.S. Minnesota, 5,000 tons.	S.S. Missouri, 4,200 tons.
S.S. Maryland, 4,200 tons.	S.S. Michigan Bldg.
S.S. Montana, 4,200 tons.	S.S. Mississippi Bldg.
S.S. Maine, 4,150 tons.	

BALTIMORE STORAGE & LIGHTERAGE CO.
236 La Salle Street, Chicago, Ill.
400 Second Street, Baltimore, Md.

THE BAY LINE

Fortress Monroe, Norfolk and the South.

The Bay Line comprises the New and Elegant Steamers
"VIRGINIA," "CAROLINA" and "FLORIDA."

All the Comforts and Luxuries of a First-Class Hotel are
afforded the traveler. Spacious and elegant saloons and
State-rooms, furnished with an especial view to com-
fort. Unsurpassed Cuisine, which is made a specialty
with this line. Elegant service and courteous attention.
Steamers leave Baltimore only (except Sundays) at 9 P. M.
AS Old Point Comfort is located the SPLENDID
HYGELA HOTEL, a Delightful Resort at all Seasons of
the Year. For Tickets and information apply to
Company's office.

157 W. BALTIMORE STREET, BALTIMORE.

Or on Board of Steamers.

D. J. HILL, Superintendent.
E. BROWN, General Ticket Agent.

J. R. ALSING COMPANY,

(INCORPORATED)

Patentees, Manufacturers and Agents for
Crushing, Grinding and Pulverizing
Machinery.

No. 60 NEW STREET, NEW YORK.
Telephone Call 3084 Cortland.

MARSTON CIRCULAR SAW



J. R. MARSTON & CO., 216 Ruggles St., Boston, Mass.

PETER GERLACH & CO.

MANUFACTURERS OF



ALLIGATOR CHISEL-BIT SAWS

THE CHAMPION

Stave, Heading and Shingle Machines.
For Tools and Saw Supplies. CLEVELAND, O.

MENGEL'S

PRINTING-
PRESSES,
PRINTERS'
MATERIALS.

LARGEST TYPE AND ELECTROTYPES FOUNDRY AND PRINT-
ING SUPPLY HOUSE SOUTH OF PHILADELPHIA.
Our type is now used by The Baltimore Sun, Washington Post,
Crisis, Herald, Public Opinion, and nearly all the leading newspapers
and Book Offices in this vicinity. Send for catalogue.

JOHN G. MENGEL & CO.

No. 111 E. GERMAN ST., BALTIMORE, MD.



PATTERN LETTERS

STEEL LETTERS & FIGURES

WOOD ENGRAVING

STENCILS &c.

W. BAUMGARTEN, 213 E. Fayette St. BALTO, MD.

Union Foundry & Machine Works

ROCKAWAY, MORRIS COUNTY, N. J.

MANUFACTURERS OF

CRUSHERS.

CRUSHING ROLLS, ROLLERS FOR MACADAM ROADS.

A special Crusher mounted on wheels for TOWNSHIP ROAD WORKING, which makes
it easy and readily taken from place to place as needed. ETC., ETC.

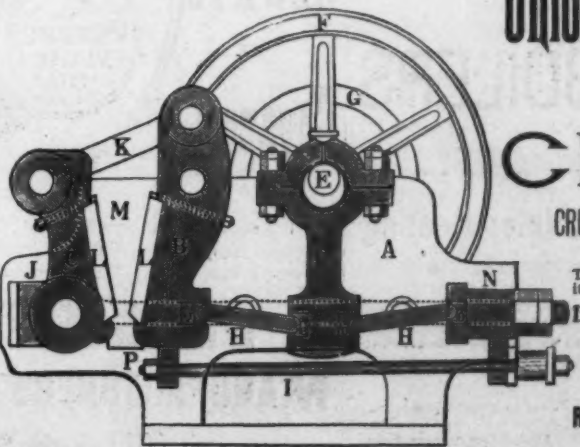
WE MAKE A SPECIALTY OF

CHILLED AND SAND ROLLS,

AND ALL KINDS OF

ROLLING MILL MACHINERY, PUMPING and HOISTING MACHINERY

FOR MINING PURPOSES.



THE LONG & ALLSTATTER CO. HAMILTON, OHIO.

Double, Single, Angle-Bar, Gang, Horizontal, Twin, Roller, Spacing, Gate, Multiple, BELT and STEAM-DRIVEN

Punch & Shears.

Over 300 Sizes.

Power-Cushioned

HAMMER.

Heavy Double Machine.

Send for New Catalogue.

Heavy Single Machine.



IMPROVED FERTILIZER MIXING MACHINES
FOUR SIZES.

Capacities from 20 to 100 tons per day. Complete Fertilizer Plants Designed, Erected and Started.

C. H. DEMPWOLF & CO., York, Pa.

WALKER & ELLIOTT, Manufacturers
Fertilizer MILL MACHINERY,

CORRESPONDENCE SOLICITED.

Automatic Mixers, Bone Mills, Breakers, Buhr Mills, Roller Machines, Pulverizers, Rolling and Shaking Screens, Elevators, Pulleys, Etc.

WILMINGTON, DEL.

Charleston Iron Works.

PHOSPHATE MINING AND MANIPULATING MACHINERY.

ENGINES, BOILERS AND MECHANICAL APPLIANCES IN GENERAL.

Prompt attention to repairs.

CHARLESTON IRON WORKS,
CHARLESTON, S. C.

Agents for the GOETZ BOX ANCHORS and POST CAPS.

Sidewalk LIGHTS.

CONCRETE ILLUMINATED SMOOTH SURFACE.
Old Style-Balls Eye Knob Protected.



STEAM HEATING APPARATUS,
Direct and Indirect Radiators.

ARCHITECTURAL IRON WORK
of Every Description.

T. H. BROOKS & CO.
CLEVELAND, OHIO.

Vault Ring.

SEND FOR SAMPLE AND CATALOGUE.

Illuminated Steel Plate Door



PIERCE, BUTLER & PIERCE MFG. CO.,
MAIN OFFICE, SYRACUSE, N. Y., U.S.A.
NEW YORK CHICAGO
42 Duane St. 95 Lake St.

MANUFACTURERS OF
FLORIDA HEATING APPARATUS

Made in 33 Sizes for Hot Water.

Made in 38 Sizes for Steam.

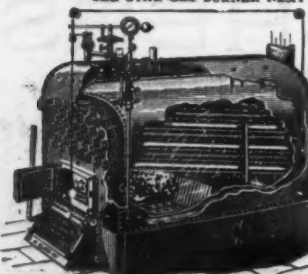
For STEAM or WATER,
HARD or SOFT COAL

THOUSANDS IN ACTUAL USE

WASHINGTON, D. C.—ZELLERS & CO.
BALTIMORE, MD.—ALVA HUBBARD & CO.
KANSAS CITY, MO.—GORE HEATING & PLUMBING CO.
ST. LOUIS, MO.—N. O. NELSON MFG. CO.
EUROPEAN AGENTS: ROBERT DAWSON & CO. Limited, ST. ALYBRIDGE, ENG.
AGENTS: A. B. RECK, COPENHAGEN, DENMARK.
Write for our 3 catalogues.

★ **THE STAR** ★
WATER TUBE BOILERS

SEE STAR GAS BURNER NEXT WEEK.



Range in capacity from 1,000 sq. ft. of radiating surface to 6,000 sq. ft. Any special size made to order.

Steam or Hot Water Heating.

OR POWER.

THE FIREBOX dispenses with all brick setting. WATER TUBES and FIREBOX give best possible fire surface. Cast Iron BASE full length and width of boiler, fitted with improved SHAKING GRATE, accompanies each boiler.

Full Particulars and Prices cheerfully given.

HARRISBURG BOILER & MFG. CO., Harrisburg, Pa.

MACHINERY WOOD AND IRON WORKING.

Engines, Boilers, Etc.

Supplies Generally.

LEATHER, RUBBER AND COTTON BELTING A SPECIALTY.

Write for Prices.

SMITH-COURTNEY CO.

RICHMOND, VA.

The LLOYD BOOTH CO., Youngstown, Ohio.

GUIDE.

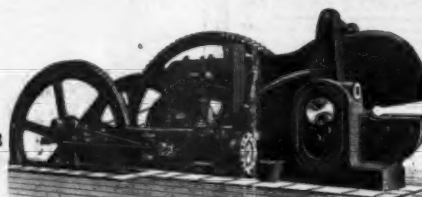
BAR.

MUCK.

SHEET

AND PLATE

MILLS.



SQUEEZERS,

SHEARS,

ORE MILLS

ROLL LATHES.

SAND AND

CHILL ROLLS,

Manufacturers of IRON AND STEEL WORKS MACHINERY.**Niagara Stamping & Tool Co.**

BUFFALO, N. Y.

MANUFACTURERS OF

Foot & Power Shearing Machinery

AND

Presses and Dies for Working Sheet Metal.

Power Chopping Shears for Nail and Tack Plates, and for Cutting Steel for Cutlery, etc., Works.

Tinners' Machines and Tools

OF ALL KINDS.

Corrugating and Curving Rolls for Roofing, Siding and Ceiling. Squaring, Circle and Hand Shears. Send for our Complete Illustrated Catalogue and Price-List and mention this paper.

Perfection Sash Balance.

The only NEVER-FAILING BALANCING DEVICE for Sash, which is Perfect in Material, Workmanship and Performance for REPAIR WORK as well as for New Buildings.

ATTACHED MORE EASILY THAN WEIGHTS OR ANYTHING ELSE.

Indorsed and praised by architects and builders. Cheaper and better than weights with cords, pulleys, box frames, pockets, etc. No drafty window frames when Perfection Sash Balances are used. Each Perfection Sash Balance is carefully inspected and tested, and is fully warranted.

ORDER FROM YOUR HARDWARE DEALER.

PERFECTION SASH BALANCE CO.

ROCHESTER, N. Y.



(TRADE MARK)

ESTABLISHED 1832 ON PRESENT PREMISES.

The Best
IS
ALWAYS
THE -
Cheapest.



Therefore
BUY OUR
COLOPHINE
OR -
Perfect Oils

The above are our specialties in MACHINERY OILS, and are the best Oils for the price manufactured. We can give you anything in the OIL LINE, any grade, at the very lowest prices. Correspondence solicited.

WM. C. ROBINSON & SON,
MANUFACTURERS AND DEALERS IN OILS.

217 South Street, Baltimore, Md.

[illegible][illegible]

(FOR "CLASSIFIED INDEX," SEE PAGE 2.)

Abington R. E. Exchange & Insurance Agency 47
Adams, S. & Son 39
Adams & Woodson 39
Adrian Brick & Tile Mach. Co. 39
Albright, T. D. Co. 24
Allott, T. C. & Son 24
Allentown Fdry. & Mch. Co. 19
Alfren, The J. B. Mfg. Co. 46
Allis, The Edw. P. Co. 26
Alsing, J. R., Co. 63
American Bridge & Iron Co. 43
American Casualty Insurance & Surety Co. 47
American Electric Elevator Co. 60
American Injector Co. 43
American Iron Machinery Co. 16
American Pipe Mfg. Co. 39
American Screw Co. 68
American Supply Co. 68
American Well Works 18
Andrew, Beck & Co. 39
Anderson 39
Anderson Fdry. & Mach. Wks. 39
Andrews, A. H., & Co. 33
Anston Rolling Mills 38
Arnold, D. J. Co. 44
Arnold, J. B. 44
Arnold, F. M., Jr. 43
Ashton Valve Co. 68
Atkins & Co., E. C. 22
Ault & Wilcox Co. 59
Austin, F. C., Mfg. Co. 30

Babcock & Wilcox Co. 29
Babcock, H. H. Co. 12
Balderson, H. & Son 13
Baldwin Locomotive Wks. 15
Ball Engine Co. 26
Baltimore Engraving Co. 26
Baltimore Steam P. & Eng. Co. 63
Baragwanath, Wm. & Son 73
Barnes, W. F. & John, Co. 22
Barnum, E. T. 12
Barr Pumping Engine Co. 24
Barr, W. B., Saw and Supply Co. 24
Bartlett, A. F. & Co. 26
Bass Foundry & Machine Wks. 26
Bassett, J. S. 26
Battle Creek Knitting Co. 49
Battle Creek Machinery Co. 19
Baumgarten, W. 63
Bay Line 53
Beach, H. L. 8
Bealey & Hodgson 39
Belden Machine Co. 62
Bell, The Edw. & Sons Co. 62
Belmont Iron Works, Ltd. 14
Bement, Miles & Co. 14
Bergner Mfg. Co. 45
Berlin Iron Bridge Co. 68
Berrymann, Jas. 6
Bertolotto, Chester, & Co. 48
Billings & Spencer Co. 58
Blackford Drill Co. 63
Blacklock & Co., Fred. J. 12
Blackstone Mfg. Co. 18
Boggs & Clark 18
Bollas & Co., J. R. 58
Boomer & Boechert Press Co., The 39
Boss Washing Machine Co. 39
Bowden, E. E. 38
Bowling, J. A. & Co. 13
Bowman, Walker, Ph. D. 39
Bradford Coll. Co. 12
Bradley & Co. 14
Bradstreet Co. 14
Brewer, H. & Co. 39
Bridenbaugh Mch. Works 12
Bristol's Mfg. Co. 6
Brooks, T. H. & Co. 64
Brothers de Sausure & Waters 39
Buckeye Engine Co. 39
Buckeye Stm. & Eng. Co. 39
Budden & Son 39
Buffalo Scale Co. 19
Buffalo Steam Pump Co. 19
Bullock Bellows Co. 25
Bullock, M. C., Mfg. Co. 16
Burgess, W. R., Mch. Co. 39
Busnell Co., G. H. 21
Byers Machine Co., Jno. F. 16
Byram & Co. 12

Caldwell, H. W. & Son 67
Calhoun, W. A. 39
Cambridge Roofing Co. 39
Cameron, A. S., Steam Pump Wks 39
Campbell Cotton Compress Co. 33
Canton Steam Pump Co. 35
Canton Steel Roofing Co. 45
Card Elec. Motor & Dynamo Co. 66
Cardell, Jas. D., & Co. 20
Cardwell Mfg. Co. 41
Case Manufacturing Co. 61
Casey & Hedges Boiler Co. 25
Cather, Wm. A. & Bro. 33
Cement 33
Central Iron & Steel Co. 67
Chambers Brothers Co. 44
Champion Iron Co. 58
Chandler & Taylor Co. 58
Chasterton Iron Works 58
Chase, Ilo, C. Co. 33
Chattanooga Fdry. & Pipe Wks. 14
C. H. & D. R. R. 33
Chesapeake Belting Co. 60
Chester Steel Castings Co. 15
Chicago Raw Hide Mfg. Co. 60
Cincinnati Corrugating Co. 45
Cincinnati Milling Machine Co. 53
Cincinnati Milling Machine Co. 53
Cincinnati Tool Co. 34
Clafes Mfg. Co. 60
Clapp, Geo. M., Agt. 43
Clark, Geo. M. 39
Clark, W. J., & Co. 62
Cleveland & Hardwick 13
Cleveland Axle Mfg. Co. 62
Cleveland Iron Works 62
Cleveland Steam Fitting & Supply Co. 60
Cleveland Twist Drill Co. 24
Cleveland Wheel'w & Mfg. Co. 30
C. L. & W. R. E. Co. 30
Codd, Wm. C. 58
Coleman, H. Dudley, Machy Co. 12
Colony 44
Colony & Hardware Co. 39
Colonnade Hotel 8
Colton, G. D. & Co. 60
Columbus Wire Works Co. 20

Columbus Wire Works 35
Colville, Fulton 47
Comly, Geo. N. 39
Connelly, B. A. 47
Consolidated Roofing Works 39
Contractors' Plant Mfg. Co. 39
Cook & Libby 39
Cooper & Co., G. & C. 26
Co-operative Town Co. 33
Copeland & Bacon 16
Cordeman Machine Co. 43
Cordeman, Meyer & Co. 23
Corby Car & Mfg. Co. 39
Corliss Steam Engine Co. 39
Corporation Book Co. 39
Cotter, W. T. 39
Covert Mfg. Co. 46
Cox, L. N. 66
Crandall Packing Co. 29
Crompton Loom Works 21
Crown Manufacturing Co. 12
Crown Hanger Co. 39
Culver & Landon 60
Curran, Jas. H. 60
Cushman Iron Co. 60
Cyclops Steel Works 24

Dake Eng. Mfg. Co. 26
Day, J. H. & Co. 63
Dean Bros. Steam Pump Works 18
Deane Steam Pump Co. 4
De Loach Mill Mfg. Co. 4
Deming Co. 18
Dever, C. H., & Co. 64
Derby & Kilmer Desk Co. 33
Dewey, F. P. 39
Diamond Prospecting Co. 16
Dixon, H., & Sons 34
Dixon, Jos. Crucible Co. 60
Dodge & Sons 47
Dolp, A. M., Co. 46
Dopp, H. Wm. & Son 24
Drapers, Geo. & Co. 4
Drew, Baldwin & Co. 13
Dufur & Co. 13
Dunning, W. D. 29
Dutton, C. H. & Co. 9

Eagle Boiler Works 27
Economy Mch. Co. 43
Edbrooke, W. J. 63
Eddy, Chas. G. 47
Edison General Electric Co. 29
Edmond, H. P. 24
Edwards Co., M. L. 24
Egan Co., The 22
Ehret-Warren Mfg. Co. 6
Eller, J. H. & Co. 45
Emerson, Smith & Co. 24
Empire Paint & Roofing Co. 4
Employers' Liability Assurance Corporation (Limited) 4
Enterprise Boiler Co. 25
Enterprise Safety Elevator Co. 58
Erie Railway 6

Farrell & Rempe 26
Farquhar, A. B. Co. 26
Fay, W. H., Manila Co. 63
Felk, F. 39
Fisher, S. J. 43
Fitzsimons & Co. 43
Fletcher & Thomas 4
Foot, G. 4
Forbis, Jas. W. 33
Forsyth, S. C., Machine Co. 27
Frank & Co. 45
Frey-Sheckler Co. 45
French & Warren 39
Freese, E. M. & Co. 44
Freese, S. W. 39
Friskes Locomotive Mill Co. 16
Frontier Mfg. Co. 13
Front Royal-Riverton, Va. 32
Fuller, W. M., Jr. 39
Fulton Boiler Works 13

Gambrell, C. A., Mfg. Co. 59
Gambrell, M. & Co. 43
Gandy Belting Co. 68
Garlock Packing Co. 68
Garrett Iron Works 17
Gay, Louis W. 25
Gerlach, Peter & Co. 63
Gibbes, W. H., Jr., & Co. 39
Gilmorgan Co., The 14
Glen Cove Machine Co. (Lim.) 33
Globe Co. 19
Globe Iron Roofing & Cor. Co. 45
Globe Machine Co. 45
Globe Machine Works 21
Goodell & Waters 22
Graham, J. S., & Co. 24
Gray Twist Drill Co. 24
Gray, Arthur F. 39
Greaves & Kiusman 63
Greer Machinery Co. 63
Gregory, R. L., & Co. 63
Guilbert, Jno. C. N. 63

Hackney Hammer Co. 14
Haight & Clark 60
Haines, Jones & Cadbury Co. 46
Harrington, E. Son & Co. 13
Harrington & King Perforat. Co. 35
Harrington Boiler & Mfg. Co. 64
Harrington Fdry. & Mch. Wks. 37
Harris & Co., N. W. 32
Harrison Safety Boiler Works 39
Hartford Steam Boiler Inspection & Insurance Co. 39
Hart Mfg. Co. 14
Hauck & Comstock 39
Haven, Jas. L. Co. 43
Hazelton Tripod Boiler Co. 37
Heartley, Geo. W. 44
Heffernan, Wm. A. 43
Henley Machine Tool Works 14
Hemlock Iron Works 47
Heine Safety Boiler Co. 62
Heiser Electric Light Co. 67
Hine & Robertson 63
Holmes, E. & B. 53
Holton Iron Roofing Co. 45
Honhorat, Littlefield & Co. 38
Hoopes & Townsend Co. 14
Hoopes Mfg. Co. 43
Houchin, A. N. 13
Howard Hydraulic Cement Co. 39
Humphrey, P. C. 39
Hunt & Connell 28
Huyett & Smith Mfg. Co. 46

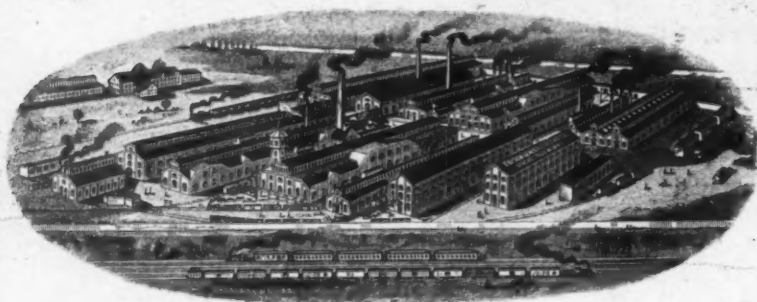
Hillside Central Railroad 1
Ingersoll-Sergeant Rock Drill Co. 1

Jeffrey Manufacturing Co. 14
Jenkins Bros. 15
Jenks, James 48
Jesup Bros. 48
Johns, H. W., Mfg. Co. 60
Jones of Birmingham 60
Jones, M. C. 60
Joyce, Cridland & Co. 63

Kane, Thos. & Co. 39
Kaneberg Roofing Co. 45
Keegan & Halpin 45
Kester, E. Co. 13
Kells & Sons 13
Kennedy, Julian 39
Keystone Elec. Co. 66
Kilbourne & Jacobs Mfg. Co. 15
Kilbourne Car Wheel Co. 15

Lackawanna Lubricating Co. 63
Laidlaw & Dunn Co. 18
Landis, E. F. 38
Landreth, Olin 39
Larson, J. P. 39
Lathe & Power Tool Co. 14
Lawrence Machine Co. 18
Leas, D. R. 39
Ledoux & Co. 27
Lefell, Jas. & Co. 27
Leitch, J. 17
Leitch Iron Works 17
Leitch Belt Engineering Co. 14
Leitch, J. P. 39
Lockwood, Green 34
Lodge & Davis Mach. Tool Co. 43
Loomis Mfg. Co. 60
Lombard, Geo. R. & Co. 13
Long & Allistair Co. 64
Long Steel & Iron R. Co. 45
Lowell Machine Shop 21
Ludlow Saylor Wire Co. 13
Ludlow Valve Mfg. Co. 25

MacLeod, John 39
MacNeil,



Edison General Electric Co.

COMPLETE STOCK OF

DOUBLE-BRACE, SELF-OILING, ADJUSTABLE

BALL AND SOCKET HANGERS.

PILLOW BLOCKS, POST HANGERS, ETC.

THE EDISON PATENT COMPRESSION COUPLING.

WE ARE IN A POSITION TO FILL ALL ORDERS IMMEDIATELY.

ADDRESS

EDISON GENERAL ELECTRIC COMPANY,
SCHENECTADY, N. Y.

"Facts are Stubborn Things."

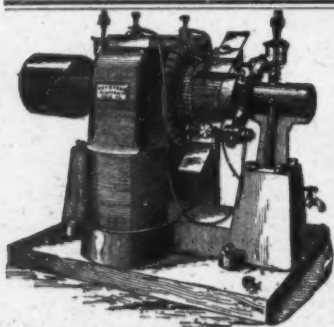
But the fact still remains that the THOMSON-HOUSTON SYSTEM OF ELECTRIC ARC LIGHTING has more Points of Superiority than any other System before the public to-day. More than TWENTY-FIVE PER CENT. of the ARC LAMPS used in the United States are of THOMSON-HOUSTON manufacture. What better Proof can be offered of the Merits of the System. Send for Catalogue No. 102.

THOMSON-HOUSTON ELECTRIC CO.

620 Atlantic Avenue, Boston, Mass. 148 Michigan Avenue, Chicago, Ill.
215 W. Fourth Street, Cincinnati, O. 403-405 Sibley St., St. Paul, Minn.

German National Bank Building, - PITTSBURG, PA.

TRADERS' BANK BUILDING, - - - ATLANTA, GA.



KEYSTONE ELECTRIC CO.

MANUFACTURERS OF

Motors and Dynamos.

Special Reversible Elevator Motors.

Also AUTOMATIC MOTORS for Church Organs.

Office, Corner Fourteenth and State Streets,
ERIE, PA.

ELECTRIC ELEVATORS

HYDRAULIC AND ELECTRIC DOCK HOISTS STEAM
ELEVATORS In practical and successful operation. Send for pamphlet L. ELEVATORS

THE AMERICAN ELECTRIC ELEVATOR CO., 15 Cortlandt Street, New York.

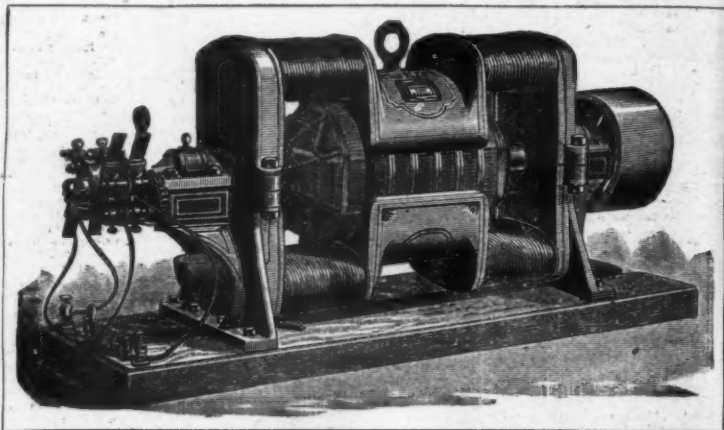
Subscribe to the Manufacturers' Record.

BUY THE

Schuyler Apparatus

IF YOU WANT

The Best Arc Lighting System.



Office and Factory:

MIDDLETOWN, CONN.

The CARD ELECTRIC MOTOR & DYNAMO CO.

MANUFACTURERS OF CINCINNATI, OHIO.

Electric Motors and Dynamos

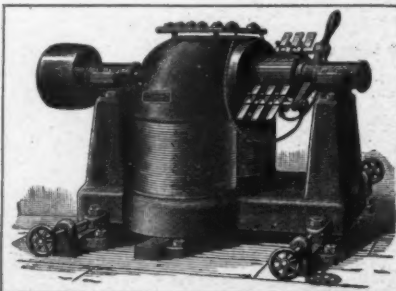
INCANDESCENT
DYNAMOS from
20 to 350 Lights.

ARC or INCANDESCENT
MOTORS from 1/4 to 30 Horse
Power.

MOTORS for the Arc
Circuit a Specialty.

These Motors have
the Highest
Efficiency, Low
Speed and Self-
Oiling Bearings.

AUTOMATIC,
SIMPLE, DURA-
BLE and CLEAN.
Correspondence
Solicited.



Boston, Eastern El-
ectrical Supply &
Construction Co.,
65 Oliver St.

Chicago, Thos. L.
Johnson Co., 312
Dearborn St.

Milwaukee, Henry
Ramien, 641 3d St.

Minneapolis, J. M.
Lennon, 22 Loan
& Trust Building.

St. Louis, St. Louis
Electrical Engineering
Co., 1106 Pine St.

Montgomery, Ala.,
W. F. Murphy.

Detroit, Mich., Mich-
igan Elec. Co., 212
& 214 Griswold St.

Arc and Incandescent
Electric Lights.

Water Works,
Motors.

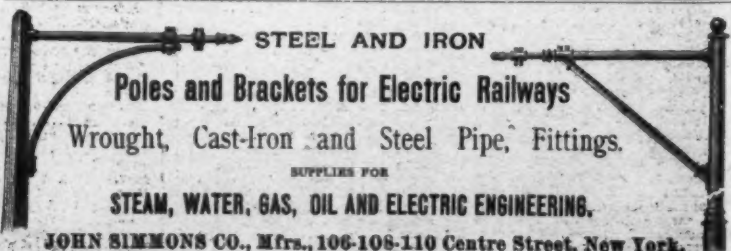
Illuminating and Fuel
Gases.

L. N. COX,

16 Fifth Street, S. E.

WASHINGTON, D. C.

Correspondence Solicited. Plans, Specifications, Estimates, &c., cheerfully furnished.



STEEL AND IRON

Poles and Brackets for Electric Railways

Wrought, Cast-Iron and Steel Pipe, Fittings.

SUPPLIES FOR

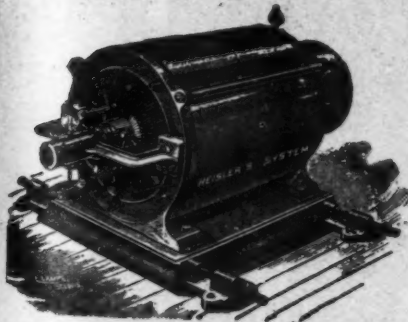
STEAM, WATER, GAS, OIL AND ELECTRIC ENGINEERING.

JOHN SIMMONS CO., Mfrs., 106-108-110 Centre Street, New York.

HEISLER SYSTEM

Long Distance Series Incandescent Electric Lighting.

UNEQUALLED FOR DISTRIBUTION OVER WIDE AREAS.



SPECIALLY ADAPTED FOR STREET, COMMERCIAL & GENERAL ILLUMINATION FROM CENTRAL STATIONS.

Plant may be located where power can be secured cheapest, even if miles distant from the lighting. Safety, Reliability, and Financial Success fully demonstrated. Plan of Wiring the Simplest, Cheapest and most Efficient. Strictly Series. Noted for the Brilliance and Beauty of the Light. Lamps, 10 to 100 Candle Power; Long Life without Blackening. Dynamo Self-contained and perfectly Automatic.

HEISLER ELECTRIC COMPANY,

Drexel Building, PHILADELPHIA, PA.

"Awarded the Highest Distinction—a Gold Medal—by the International Jury at the Universal Exposition, Paris, 1889."

Send for Circulars.

Correspondence Solicited.



THE WELLS LIGHT

WALLWORK & WELLS' PATENT. (Registered Title.)

OVER 1,000 SOLD. 800 AND 2,000 CANDLE-POWER FROM OIL.

Adapted for iron and steel works, foundries, boiler shops, bridge builders, railroads, quarries, contractors, logging, etc., etc. Used by Robert Poole & Son Co., Clifton Iron Co., Longdale Iron Co., Palatka Iron Co., Old Dominion Iron & Nail Co., the Glamorgan Co., N. & W. R. R. and C. & O. R. R. For descriptive circular address

KEEGAN & HALPIN,

44 and 46 Washington Street, NEW YORK.

Improved Road Machinery.



Pennock Reversible

AND
Vulcan Adjustable Steel
Road Builders.

For Cuts and Full Particulars, Address

VULCAN ROAD MACHINE CO., Charles Town, Jefferson Co., W. Va.

Conveying, Elevating and Power Transmission Machinery

For Cotton Seed Oil Mills, Phosphate and Fertilizer Works, Ginneries, Starch Works, Sugar Refineries, Cement Works, Rice Mills, Grain Elevators, Flour Mills, Etc.



"SOUTH BEND"
Wood Split Pulleys,
With Iron Hubs
and Iron Bushings.
Will Not Slip on
Shaft. No Danger
From Fire.

H. W. CALDWELL & SON,
GENERAL MACHINISTS,

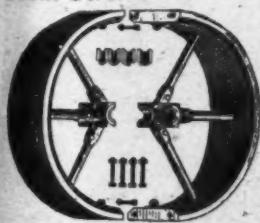
127, 129, 131, 133 West Washington Street,

CHICAGO, ILL.



CALDWELL STEEL CONVEYOR,
Automatic Power Grain Shovels.

LARGE AND COMPLETE STOCK FOR IMMEDIATE SHIPMENT.



SPROCKET WHEELS, Link Belting, Cotton, Rubber and Leather Belting, Elevator Boots, Belts and Buckets, Spouts, Gearing, Friction and Jaw Clutches, Hangers, Shafting, Pillow Blocks, Iron Pulleys, Set Collars, Take-Up Boxes, Turn Heads, Perforated Metal, Wire Cloth, Etc.



AVERY PLAIN

AND CALDWELL-AVERY

CORRUGATED
SEAMLESS STEEL
ELEVATOR
BUCKETS.



WROUGHT-IRON OPEN HEXAGONAL.

MADE FROM THE BEST CHARCOAL IRON.



TURNBUCKLES.

Guaranteed Stronger than any Similar Article on the Market.



The Only Buckle Made that has The Central Iron & Steel Co.
a Perfect Wrench Hold.

WABAZIL, IND.

Western Agents
H. L. GREEN & CO., 46 Lake St., Chicago.
Eastern Agents:
ANTHONY & McELROY, 328 Chestnut St., Philadelphia.

MARYLAND NON-ACID PHOSPHATE COMPANY.

This is an entirely new departure in the Fertilizer Trade. Our products furnish a permanent as well as a speedy enricher of the soil, and are entirely free from any deleterious acid. Every pound is of value for fertilizing the soil. Its physical condition is such that not the slightest difficulty is found in obtaining even distribution on the soil by drill or otherwise. Its cheapness, which, in addition to its intrinsic value, must commend it. This process is patented, and we are the sole owners of said patent for the United States.

STATE RIGHTS FOR THE MANUFACTURE UNDER OUR PATENT CAN BE NEGOTIATED FOR.

NO EXPENSIVE PLANT REQUIRED.

SEND FOR CIRCULAR.

210 E. LEXINGTON STREET, BALTIMORE, MD.

